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President's Report

For the year ending
30th June, 1921

1920/1921

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UNIVERSITY OF TORONTO

PRESIDENT'S REPORT

~~1921-1922~~
1920-1921

To the Governors of the University of Toronto:

GENTLEMEN,—I beg to submit the following report on the academic work of the University and University College during the twelve months ended June 30th, 1921.

The total staff of the University and University College numbered 558, of whom 68 were professors, 48 associate-professors, 41 assistant-professors, 76 lecturers and associates (in medicine) and instructors in the College of Education, 325 demonstrators, fellows and instructors with sessional appointments. They were distributed as follows:—

	Professors.	Associate Professors	Assistant Professors	Associates	e	Other Sessional Appoiutments
University (Faculty of Arts)...	26*	14	17	....	21	75
University College............	13	4	9	....	6	6
Faculty of Medicine...........	15	17	4	11	1	156
Faculty of Applied Science.....	10	9	4	....	13	43
Faculty of Household Science...	......	2	....	....	2	5
Faculty of Forestry...........	1	2	....	....	....	......
Faculty of Music..............	......	......	....	....	4 ..	......

*1 also in Med.

	Director.		Director Field Work			
Social Service Courses.........	1	......	1 ..	....	....	13
Public Health Nursing.........	1	......	1 ..	....	....	24

				Lecturers and Chief Instructors	Assistant Instructors	
Ontario College of Education...	3	......	7	4	14	....

In Victoria College there were:

Professors..................................	14
Associate Professors........................	4
Lecturers...................................	6
Special Instructor..........................	1

In Trinity College there were:

Professors..................................	9
Lecturers...................................	8

In St. Michael's College there were:

Professors..................................	9
Lecturers...................................	17

Dr. Irving H. Cameron having reached the age limit for retirement withdrew from the active duties of the professorship of Surgery which he had performed for thirty-three years. By his skill and knowledge as a surgeon, his broad and deep cultivation of mind, his exemplification of the best qualities of his profession and his wide acquaintance with its leaders in both hemispheres he shed great lustre on the chair which he occupied. The University is deeply grateful for the service rendered to her by one of her most loyal sons.

At the close of the session William George Smith, B.A., Associate-Professor of Psychology resigned his position in order to become head of the department of Philosophy in Wesley College, Winnipeg.

The following new appointments and promotions were made during the year:—

In the Faculty of Arts,—Promotions: Thomas Hirst Black, M.A., B.Sc., LL.B., (Glasgow), from a lectureship to a professorship in Roman Law and Jurisprudence; Samuel Beatty, Ph.D., from an assistant-professorship to an associate-professorship in Mathematics; Hardolph Wasteneys, Ph.D., (Columbia), from an assistant-professorship to an associate-professorship in Biochemistry; Edward Alexander Bott, B.A., from a lectureship to an assistant-professorship in Psychology; David Duff, M.A., B.D., (Edin.), from a lectureship to an assistant-professorship in Latin.

Appointments—Ralph Flenley, M.A., (Liverpool), B.Litt., (Oxon), associate-professor of History; Robert Strachan Knox, B.A. (Oxon), M.A. (Aberdeen), associate-professor of English; Emilio Goggio, M.A., Ph.D. (Harvard), assistant professor of Italian and Spanish; Thure Hedman, Ph.B. (Chicago), assistant-professor of German; James Montrose Duncan Olmsted, M.A. (Oxon), Ph.D. (Harvard), assistant-professor of Physiology; John Lighton Synge, B.A. (Trin. Coll. Dublin), assistant-professor of Mathematics; Miss Aline Chalufour, B. ès L. (Paris), lecturer in French; William Andrew Cook, M.A., lecturer in Psychology; John Richardson Dymond, M.A., lecturer in Systematic Vertebrate Zoology; Wellesley Dorland Evans, B.A., lecturer in French; Harold William Alexander Foster, LL.B., lecturer in Commercial and International Law; Harold Adams Innes, M.A., (Chicago), lecturer in Political Economy; Hubert Richmond Kemp, M.A., lecturer in Economics; Norris Edward Sheppard, M.A., lecturer in Mechanics and Mathematics; Norman Burke Taylor, M.B., lecturer in Physiology, and Miss Jessie Gertrude Wright, M.A., lecturer in Botany.

In the Faculty of Medicine,—Promotions: Robert Davies Defries, M.D., D.P.H., from a lectureship to an assistant-professorship in Hygiene; Hugh Bethune Maitland, M.B., from a lectureship to an assistant-professorship in Pathology and Bacteriology.

Appointments—Alexander Primrose, C.B., M.B., C.M. (Edin.), Dean; John James Rickard Macleod, M.B., C.B. (Aberdeen), D.P.H. (Cambridge). Associate-Dean; Victor John Harding, D.Sc. (Manchester), professor of Chemical pathology; Gideon Silverthorne, M.B., professor of Medical Jurisprudence; Noble Carman Sharpe, B.A., M.B., assistant professor of Pharmacy and Pharmacology; George Maitland Biggs, M.B., associate in Oto-Laryngology ; Harvey Clare, M.D., associate in Psychiatry; Gordon Earle Richards, M.B., associate in Radiology; and Donald Thomas Fraser, B.A., M.B., lecturer in Hygiene.

In the Faculty of Applied Science,—Promotions: Peter Gillespie, M.Sc., C.E., from an associate-professorship to a professorship in Applied Mechanics; Frederick Charles Dyer, B.A.Sc., from a lectureship to an assistant-professorship in Mining Engineering.

Appointments—Adrian Berrington, associate-professor of Architecture; John Hamilton Parkin, B.A.Sc., M.E., assistant-professor of Hydraulics; C. S. Adams, B.Sc., M.A., lecturer in Applied Chemistry; Wesley Austin, M.Sc., lecturer in Metallurgical Engineering; and James Edwin Toomer, B.Sc., lecturer in Metallurgical Engineering;

In the Faculty of Forestry,—Promotions: Clifton Durant Howe, M.A. (Vermont), Ph.D. (Chicago), from associate-professorship and acting deanship to a professorship and to be Dean of the Faculty; Willis Norman Millar, B.Sc. (Pennsylvania), M.F. (Yale), from an assistant-professorship to an associate-professorship; James Herbert White, M.A., B.Sc.F., Ph.D., from an assistant-professorship to an associate-professorship.

In the Department of Social Service,—Appointments: James Alfred Dale, M.A., (Oxon), Director of Department and professor of Social Science; Miss Agnes Christine McGregor, Director of Field Work.

In the Department of Public Health Nursing,—Appointments: Miss E. Kathleen Russell, B.A., Director of Course.

In the Department of University Extension Publicity,—Appointments: W. J. Dunlop, B.A. (Queen's), Director of Extension Work and Publicity.

In the Department of Military Studies,—Appointments: Professor William Robert Lang, D.Sc. (Glasgow), Director of Military Studies.

In the Ontario College of Education,—Promotions: Peter Sandiford, M.Sc., Ph. D., from an associate-professorship to a professorship in Educational Psychology; Miss Laura Lavinia Ockley, B. A., from a lectureship to an assistant-professorship in Household Science.

Appointments,—Walter Ernest Macpherson, B.A., LL.B., assistant-professor; Frank Halbus, B.A., lecturer, and Allen Nelson Scarrow, lecturer.

In Special Research,—Appointments; John Bright Ferguson, B.A., associate-professor of Chemistry; Harold Boys Sifton, M.A., assistant-professor of Botany.

The total number of students registered in the University in 1920-1921 was 5,060, or apart from those registered in the Summer Session and Occasionals in Social Service, 4,710, distributed as follows:—

	Men.	Women.	Total.
Faculty of Arts:—			
University of Toronto	128	61	189
University College	630	540	1,170
Victoria College	319	191	510
Trinity College	88	41	129
St. Michael's College	121	85	205
Graduate Courses	113	50	163
Faculty of Medicine	1,039	88	1,127
Faculty of Applied Science	805	1	806
Ontario College of Education	150	76	226
Faculty of Forestry	55	....	55
Faculty of Music	12	6	18
Department of Social Service	18	348	366
Department of Public Health Nursing		126	126
Registered twice	20	11	31
	3,458	1,602	5,060

The figures may be further analyzed as follows:

FACULTY OF ARTS.

University of Toronto.

	Men.	Wowen.	Total.
Teachers' Courses and Summer Session	52	44	96
Occasional Arts Students	19	17	36
Veterinary Students	57	....	57
	128	61	189

University College.

	Men.	Women.	Total.
First Year Undergraduates	264	193	457
Second Year Undergraduates	162	131	293
Third Year Undergraduates	102	87	189
Fourth Year Undergraduates	71	97	168
Occasional Students	31	32	63
	630	540	1,170

Victoria College.

	Men.	Women.	Total.
First Year Undergraduates	92	86	178
Second Year Undergraduates	64	72	136
Third Year Undergraduates	52	29	81
Fourth Year Undergraduates	51	37	88
Occasional Stndents	23	4	27
	319	191	510

Trinity College

	Men.	Women.	Total.
First Year Undergraduates	22	20	44
Second Year Undergraduates	27	15	42
Third Year Undergraduates	17	10	27
Fourth Year Undergraduates	8	6	14
	88	41	129

St. Michael's College.

	Men.	Women.	Total.
First Year Undergraduates	48	36	84
Second Year Undergraduates	28	18	46
Third Year Uudergraduates	17	19	36
Fourth Year Undergraduates	14	10	24
Occasional Students	14	2	16
	121	85	206

Graduate Courses.

	Men.	Women.	Total.
Candidates for Ph.D.	28	6	34
Candidates for M.A.	62	33	95
Candidates for M.D.	3	....	3
Graduate Students	20	11	31
	113	50	163

Faculty of Medicine.

	Men.	Women.	Total.
First year Undergraduates	197	11	208
Second Year Undergraduates (Five Years Course)	196	16	212
Second Year Undergraduates (Six Years Course)	133	15	148

Third Year Undergraduates	214	19	233
Fourth Year Undergraduates	160	14	174
Fifth Year Undergraduates	119	12	131
Post Graduate Students	6	1	7
Occasional Students	3	....	3
Candidates for D.P.H.	10	1	11
	1,038	89	1,127

Faculty of Applied Science.

	Men.	Women.	Total.
First Year Undergraduates	192	....	192
Second Year Undergraduates	315	1	316
Third Year Undergraduates	162	....	162
Fourth Year Undergraduates	135	....	135
Occasional Student	1	....	1
	805	1	806

Ontario College of Education.

	Men.	Women.	Total.
Students registered	150	76	226

Faculty of Forestry.

	Men.	Women.	Total.
First Year Undergraduates	19	....	19
Second Year Undergraduates	18	....	18
Third Year Undergraduates	10	....	10
Fourth Year Undergraduates	5	....	5
Sixth Year Undergraduates	1	....	1
Occasional and Special Students	2	....	2
	55	....	55

Faculty of Music.

	Men.	Women.	Total.
First Year Undergraduates	6	4	10
Second Year Undergraduates	3	....	3
Third Year Undergraduates	3	1	4
Occasional Student	....	1	1
	12	6	18

Department of Social Service.

	Men.	Women.	Total.
Students registered	18	348	366

Department of Public Health Nursing.

	Men.	Women.	Total.
Full time Students	....	50	50
Part time Students	....	76	76
	....	126	126

The numbers examined in the different departments of the University, including those granted standing for Military Service, were as follows:—

Arts:

Ph.D.	4
M.A.	55
Fourth Year	319
Third Year	469

Second Year	556	
First Year	750	
Senior Matricuation	204	
		2,357
Medicine:		
Fifth Year	131	
Fourth Year	169	
Third Year	232	
Second Year	321	
First Year	195	
Occasional Student	1	
		1,049
Applied Science:		
Professional Degrees	4	
Fourth Year	131	
Third Year	161	
Second Year	295	
First Year	181	
		772
Education		161
Forestry		54
Music		7
Law		22
Pharmacy		99
Dentistry		1,075
Agriculture		83
Local Examination in Music		613
Veterinary Science		20
Social Service		277
Public Health Nursing		60

The degrees conferred were:

LL.D. (Honorary)	8	
D.Litt. (Honorary)	2	
D.Sc. (Honorary)	2	
Ph.D.	3	
M.A.	52	
M.A.Sc.	1	
D.V.Sc.	1	
LL.B.	4	
M.D.	2	
D.P.H.	2	
M.B.	143	
B.A.	332	
C.E.	2	
M.E.	1	
B.A.Sc.	118	
D.D.S.	140	
B.S.A.	74	
B.Sc.F.	6	
Phm.B.	94	
B.V.Sc.	19	
		1,006

Such a complete report of the present condition and needs of the University was presented last December to the University Commission appointed by the Government, that little remains except to refer to the actual work of the academic year and to emphasise a few matters of especial urgency.

The figures of attendance show that in all the faculties and departments except the College of Education there have been more students than in any other year in the history of the University. Arts has reached its pre-war mark; Medicine is much higher than it has ever been; Applied Science, in spite of the exaction of a more difficult standard of entrance, was as large as in the previous year. Owing to pressure on our space the students of the Royal College of Dental Surgeons could not be given instruction in Anatomy, and to that extent the number of occasionals was diminished.

The problem of entrance still faces us. The first year of University College was so large that the accommodation was not only quite inadequate, but is such that there are many rooms in which students should not be required to take instruction. The situation in Economics was even worse, for one old dwelling-house was the headquarters of a department that has to provide instruction for 763 pass and 240 honour students. But perhaps worst of all was the condition of the students in Botany. Not only are the laboratories of this rapidly growing department quite inadequate for the present, but it was necessary to break up the teaching museum in order to get space for the routine instruction. Graduate work is curtailed, and necessary additions to the staff cannot be secured to take care even of present needs as there is no place in which to have the teaching done. It will be difficult to attract good men to the staff until better quarters can be offered.

I cannot emphasise too strongly the fact that the delay in carrying out the building programme set forth by the Governors last year to the Commission is seriously crippling the efficiency of the University. Every indication goes to show that even with the rise of standards the numbers in Arts will not be reduced in such a way as to make the demands for buildings less urgent. The best work cannot be done in the kind of space we have at our disposal.

The Faculty of Arts is maintaining its position among the other Faculties, and shows signs of steady and permanent increase, which is partly due to the large number of women who are entering the Colleges. This fact increases the necessity of securing a Dean of Women who will have as her main duty the supervision of the welfare of the women students in University College. For the last five years Miss Margaret Wrong acted as Resident Head of the University College Union, and by her earnest work, her indefatigable interest in individual students and her creation of high standards introduced a new life among the women. I wish here to express my high appreciation of what she has done. But the work so well begun must be carried further, and though I am very grateful to Miss Waddington for having consented to act as Resident Head of the Union in addition to her duties in the department of English, the experience of this opening academic year only emphasises the necessity of having some graduate devote her whole time to the deanship.

Collegiate life will never be what it should be in University College until residences for men and women with a Union for the latter have been provided in addition to proper class-room accommodation. Our students, drawn as they are from every section of Ontario as well as other parts of the Dominion, and from all classes in society, are material of first-rate quality, but without suitable buildings to live and work in they are not getting what they should get from their college life; they are not educating one another as they might; they do not enjoy those rich gifts which are so uniquely afforded in the English and the old American College, a historical institution which both branches of the English-speaking world have preserved as distinctive in their educational system. It remains for us also in Canada to preserve as a centre of liberal education the college bearing our own individual mark and affording opportunities for intercourse and friendship through the constant commingling of students

That the intellectual standards of the University Colleges are high is shown by the successes of our Toronto Arts graduates who have continued their studies in Britain and the United States. Recently there have been several brilliant successes at Oxford, and a score of our graduates are now taking courses in British universities to which their entrance is made easy on account of the work done by their predecessors.

Our graduate work in Arts has been quietly growing. Last year there were 95 doing M.A. work, 37 preparing for the Ph.D. and other advanced degrees (including 3 for the M.D.), 31 in general graduate work, 163 in all. A good deal of attention was directed in the early spring to changes which it was hoped would improve the administration of this graduate work, and these proposals will soon be presented to the Senate for its consideration. Here again I must emphasise the need of more fellowships for graduate work. Present conditions have made it difficult for individuals who were able formerly to provide fellowships to continue to do so. But their provision is a necessity for the welfare of the country. In this respect we are far behind Britain. There the deserving but poor lad is given a chance in school, and if he has ability he can by means of scholarships win his way through Oxford or Cambridge. Britain offers an example of true democracy in the way of educating those who are to become her leaders, her experts in science and her scholars, and this example we shall do well to follow. The more exacting the standards become, the more intense their demand upon the continuous mental energy of those who are to succeed, and the longer the courses, the greater is the necessity for the establishment of scholarships to make the long and arduous journey feasible for many of those who are best qualified to undertake it.

In Medicine the new six years' course is working out satisfactorily, but in the later years already there is such congestion that sufficient clinical material will not be available in the hospitals of the city to afford satisfactory instruction to the individual student. Therefore the numbers of entrants are now being limited, and to place this limitation on a better basis a higher standard of entrance is to be required next year—pass in at least three subjects of honour matriculation.

For the general work of the Faculties of Medicine and Applied Science I refer to the reports of the Deans. In Medicine the most important event was the grant by the Rockefeller Foundation of the interest of one million dollars for the development of the Faculty. Thereby the reorganization of the surgical department somewhat on the lines of Medicine was made possible, under the direction of Dr. Clarence Starr as professor, who began his work on July 1st, 1921. In Applied Science the occupation of the new building for Electricity and Strength of Materials has been a great relief from an overcrowded condition, and has led us to expect confidently a rapid development of these departments, and indeed an improvement in the teaching of the whole Faculty. This University situated as it is should become one of the best centres in the world for advanced work in connection with Hydro-Electric power.

Forestry has been rapidly recovering its pre-war numbers, and the Dean gives interesting information as to the destination of and demands for its graduates. But inadequately as this faculty was housed before the war, it is more so now, and along with botany, has the worst accommodation of any scientific department in the University.

I wish to call attention to the report of Dean Vogt of the Faculty of Music, and especially to what he says about the transfer of the Toronto Conservatory of Music to the control of the Governors of the University involving as it does also a change in the conduct of our Local Examinations in Music. Henceforth the primary work in music will be done at the Conservatory and the degree work at the University. There will also be only one examination for the Local Examinations which will be conducted by the Conservatory of Music.

Research has been fully reported by those who are in charge of it. Its volume is large, and excellent results, some of which may soon have far-reaching consequences, are being obtained. Through the special grants made by the Governors for research the spirit of investigation has been greatly strengthened, and younger men are to be found in most departments, who, either on their own account or under the direction of others who have already much to their credit, recognize that scientific research not only heightens their own interest but is becoming an essential qualification in a member of the staff of a modern university.

Though what was formerly the Faculty of Education is now the Ontario College of Education the relationship of this department to the Board of Governors is happily unchanged, and I have pleasure in presenting as usual the report of Dean Pakenham. As a result of the new policy the numbers were greatly reduced, those in training for first-class certificates having been assigned to the Normal Schools. All the students in the College of Education in the regular course were graduates in Arts. By reason of the smaller attendance of students and their comparatively similar grades of academic preparation much closer attention has been given to the individual by the members of the staff, and graduate work has now been made possible to a greater extent than formerly.

Mr. Dunlop, who was placed in charge of the Departments of Extension and Publicity, presents a full and very satisfactory report showing what a field of usefulness is opening up to the University in various directions beyond its borders. The demand for lectures may prove greater than our capacity to meet it. Various classes of the community are seeking help from the University, and the experiments in providing short courses for farmers in the winter and for journalists in the summer have been so successful that we can safely forecast large expansion in these and similar directions. The Summer Session and Teachers' Courses also have been rapidly growing in popularity.

For the first time Professor Dale has presented a report as Director of Social Service. The variety of the work he outlines and the improvement in its quality year by year has amply justified the University in establishing this department.

At the request of the Red Cross Society the University undertook to establish a course for Graduate Nurses. Miss E. K. Russell was appointed director, a thorough curriculum with instruction was provided, and over fifty full-time nurses were in attendance who have undertaken to serve the more outlying parts of the country for a certain number of years.

The social and athletic life of the men students has been well maintained through Hart House, the potentiality of which is being more completely realized each year. Also their general health has been well maintained. Both in the domestic and inter-university games the Toronto teams have had a remarkably successful year, but the students are to be especially commended for the spirit they have shown which cannot fail to have a good influence upon sport throughout the country. This University is particularly fortunate in possessing a body of graduates who are so deeply interested in athletic activities that they devote much time and thought in helping to maintain by their advice, along with the undergraduates, the highest and healthiest standard of sport throughout the university.

For the coming year Dr. Porter is to have complete supervision of the health of the men students, and is associated with the Department of Hygiene in the expectation that his results may be of much value in providing data with regard to the general health of the communities from which the students are drawn.

It is most unfortunate that the women students of the University are left without practically any means of promoting common intercollegiate social and athletic activities. They need this life quite as much as the men do; their health requires more careful attention; but we have no suitable building, and therefore cannot make athletics and attendant health supervision compulsory. The appointment of Dr. Edith Gordon on July 1st, 1921, as Medical Adviser for women is a step in the right direction, but without giving her better appliances we cannot expect the best results.

I cannot overlook the valuable co-operation of the Alumni Association during the year in making known the needs of the University to a very wide constituency. Many of our graduates devoted valuable time and energy when it was greatly needed, and without singling out any one above another it may be said that such a large number of graduates have never before been so actively devoted to the welfare of their Alma Mater.

Two special Convocations were held during the year. the first on August 10th, in connection with the visit of the Imperial Press Conference when degrees were conferred upon Robert Donald, Esq., Geoffrey E. Fairfax, Esq., Sir Robert Bruce and the Rt. Hon. Sir Gilbert Parker, Bart., the second on November 5th, in Hart House when an honorary degree was conferred upon Mr. Chester Daniel Massey.

Ten Organ Recitals were given by the University Organist, Mr. F. A. Mouré, covering the months of November to March inclusive. It is a matter of gratification that the attendance at these recitals has now grown to an average of 800 to 1000, an evidence of how much they are appreciated.

The following lectures and extra courses were given:—

Mr. Robert Mond, M.A., F.R.S. of London, England, lectured on "The Mortuary Chapels of the Theban Nobles"; Dr. C. Weizmann, Professor of Biochemistry in the University of Manchester on "The Proposed Jewish University at Jerusalem"; Three lectures were given by Dr. Edgar T. Wherry, of the Bureau of Chemistry, Washington, D.C., on "Optical Crystallography Applied to Chemical Problems"; "Crystal Habit" and "Soil Acidity and Plant Distribution"; a short course on "Christian Art" by Dr. Joseph Pijoan, showing the development of the different schools of art and architecture throughout the Middle Ages in Europe ; the Saturday Afternoon Course consisted of lectures by the Rev. F. J. Foakes Jackson, D.D., on " Margaret Catchpole, A study in East Anglian Life and in Literary Criticism"; Professor W. D. Woodhead, M.A., on " The Case for Greek " ; Professor Marcel Moraud, L. ès L., on " Anatole France as an Exponent of Modern French " ; Professor Andrew Hunter, M.B., Ch.B., on " Digestion " ; Professor C. T. Currelly, M.A., on " Recent Developments in our Knowledge of Chinese Art " ; Professor M. A. Buchanan, M.A., Ph.D., on " Lope de Vega and the Spanish Drama " ; Professor J. G. Fitzgerald, M.B., on " The Practice of Preventive Medicine " ; Professor Pelham Edgar, B.A., Ph.D., on " Novels and Poems of Thomas Hardy " ; and the Rev. Abbé Dimnet, on " Coming Men in French Literature."

We thank Sir Bertram Windle, F.R.S., for again providing a most instructive course of twelve lectures on "The Roman Occupation of Britain," which were largely attended.

One of the noteworthy events of the year was the Conference conducted in the Physics Department on " Recent Problems in Physics." Physicists from nearly every University in the Dominion attended this Conference, being drawn by the courses of lectures given by Dr. Silberstein and by Dr. Langmuir on " Relativity." Lectures were also delivered by our own and other Canadian physicists.

The grant from the Rockefeller Foundation of the interest of one million dollars for the development of Medicine has already been referred to. These additional benefactions have been received during the year: J. Harrington Walker Bequest for Residences $15,000, Khaki University Memorial Scholarships $12,000, from Canadian Red Cross Society for Public Health Nursing $4,500, from Sir John M. Gibson for Gibson Pass Matriculation Scholarships $4,000, from Canadian Oral Prophylactic Association for Dental Research, $3,000, the William Hardie Scholarship (Ottawa) $1,000, from Professor John Squair for Squair French Library Fund $1,000, Pathological Special Investigation Fund from Sir Edmund Osler $1,000, and an Anonymous Donor $500; Graduate Fellowships, one from Colonel R. W. Leonard $500, two from Sir Edmund Osler $1,000, the R. A. Reeve Prize $100, R. A. Reeve Bequest $800, John Hughes Horton Bequest $650, and from the Marion Dickenson Estate on account of the Marion Dickenson Scholarship in Household Science $200.

Also during the year the Committee of the Alumni Association have made loans amounting to $46,399 to 214 returned soldier-students. Already these loans are being repaid and the capital will then be used for providing scholarships for the children or relatives of soldiers.

Again I cannot but refer to the effect in retarding the development of the University which has been produced by our uncertainty as to what financial support can be relied upon. The staff are anxious as to their own future, it is difficult to make offers to men who are called to fill vacancies, and the youth of the country in attendance are not getting all that with some reasonable and reliable annual increase we should offer them. Nor can the University reach out through its extension to meet the opportunities which have been so splendidly manifested by Mr. Dunlop even in the first year of his work. His report shows what lies to our own hand to do if only we have the financial means. The people young and old want education. Only in a widely cultivated and diversified society such as higher education creates will even those economic interests be constantly called into being which both make and satisfy a productive population. Mere material development will soon exhaust itself by producing a narrow people with few interests, whereas a broadly and highly educated community will become not merely increasingly efficient, but will afford occupation for skilled workers both urban and rural, and will demand a more varied production to meet the growing needs of an enriched country.

All of which is respectfully submitted.

ROBERT A. FALCONER,
President.

November 5th, 1921.

APPENDIX A

(1) Report of the Principal of University College.
(2) Report of the Dean of the Faculty of Medicine.
(3) Report of the Dean of the Faculty of Applied Science and Engineering.
(4) Report of the Dean of the Faculty of Forestry.
(5) Report of the Dean of the Ontario College of Education.
(6) Report of the Dean of the Faculty of Music.
(7) Report of the Chairman of the Board of Graduate Studies.
(8) Report on Research.
(9) Report of the Librarian.
(10) Report of the Director of the Department of Social Science.
(11) Report of the Director of University Extension and Publicity.
(12) Report of the Director of Department of Military Studies.
(13) Report of the Physical Director.
(14) Report of the Director of the Connaught Antitoxin Laboratories.
(15) Report of Department of Public Health Nursing.
(16) Statement regarding the Biological Museum.
(17) Statement regarding the Museum of Geology.
(18) Statement regarding the Museum of Palæontology.
(19) Statement regarding the Mineralogical Museum.

(1) REPORT OF THE PRINCIPAL OF UNIVERSITY COLLEGE.

(PROFESSOR M. HUTTON).

The Session of 1920-1921 has witnessed a certain long over-due awakening of the student body of University College.

My last report was concerned with the crowding out of the College from its own building and the encroachments of the departments of administration. The students have caught another aspect of these encroachments: they have felt that the College in losing its local centre and its grip on the mis-called "Main Building"—a misnomer very significant of the extent to which the encroachment has gone—was losing its separate identity, and any *esprit de corps* which had managed to survive: when lectures were being delivered in the kitchen, when the classical staff could only be exhumed from sculleries, when the large lectures in English and Latin could only be found in Medical Buildings or Dining Halls, it seemed unreal and a mockery to give the name of "University College" to another building which saw none of these lectures but was engrossed with the paying of fees and enquiries about the curriculum: and if there was no University College what college spirit was possible?

The general unrest in this and larger forms has had two results: the appointment by the Government of a Committee to report on the needs of the University and College, and the appointment also by the students of a Committee to report on the best means of quickening the corporate spirit of the students of University College.

The students' Committee was started by the student society: the old Literary and Scientific Society which has a long and not inglorious history of some sixty-seven years; and was the original on which the Medical Society and the Engineering Society were based.

It throws a curious side light on the War and on the degree to which the War altered everything, that the Literary and Scientific Society should have lost its hold among a body so conservative as University students: but so it was: the men went to the front in the War: the handful that remained could not maintain the Society and it lapsed: and when the War ceased and the opportunity came for its revival, it seemed too late.

For the lapse had revealed the weak spot in the organization of the society: it was, at least nominally, a debating society: it did not represent the one interest that is strong in all student assemblies and paramount in some, the athletic element.

But the athletes who had served the country nobly in war returned all the stronger for athletics when peace came. They have illustrated it by winning already two Canadian Championships this year in Rugby Football and Hockey. They illustrated it also by asking for better representation in the Student Society of University College than they had ever received in the Literary and Scientific Society. Accordingly the name has been changed to the Literary and Athletic Society and a compulsory fee asked for, which will be spent (on the system of responsible government), by the Executive of the Society, elected by the whole body of male students and responsible to the same, and which also, by providing the money required for athletics will give college spirit and athletic capacity a chance to show itself for the first time freely and without great obstacles in the College; the debating side of the society meanwhile will continue and continue to justify the first part of the society's name.

To turn from the students to the official Government of the University, the Commission appointed to enquire was sufficiently impressed by the kitchens and sculleries where it found students and professors at work to recommend the completion of University College by a north wing, and the building of an Administration Building to set free the south, east and west wings from administrative uses.

This report has not yet been accepted by the Government at the time of writing, but if it be carried out in essentials the same session will have witnessed urgent reforms in the conduct of University College initiated and successfully prosecuted both by the students and by the Province.

I append the figures showing the number of students, the largest yet recorded:

	Men.	Women.	Total
First Year	264	191	455
Second Year	166	130	296
Third Year	103	91	194
Fourth Year	69	97	166
Occasionals	30	30	60
	632	539	1,171

(2) REPORT OF THE DEAN OF THE FACULTY OF MEDICINE.

(PROFESSOR A. PRIMROSE).

Two factors contribute to create an abnormal situation in the conduct of the Course in Medicine at the present time. In the first place the number of students in attendance is far in excess of that which should obtain or has hitherto existed. This is mainly due to the fact that provision had to be made for returned soldiers who had qualified for the Course in Medicine, or who had already entered upon their course before going to the War. In the second place we are passing through a transition period from the five year course to the six year course. This factor causes increased difficulty because of the circumstance that at the beginning of the session 1919-20, when the six year course was introduced, certain of the returned soldiers were eligible to enter the five year course and were so registered, while others, beginning their Medical Studies at the same date, enrolled in the six year course. The result is that the second year of the session 1920-21, contained 212 students of the five year course and 148 students of the six year course. This doubling up of that particular group of students must continue through the final years until the session 1923-24 has been passed.

The first factor mentioned above is not wholly solved by the disposal of the returned soldiers. The tendency is for the entering class in Medicine to grow to proportions beyond that consistent with efficient provision for their instruction. This is true, in particular, concerning the final years of the course. The Council of the Faculty of Medicine have reported very fully to the Senate and the Board of Governors on this matter and have shown conclusively that it is impossible to provide adequate clinical facilities for the instruction of classes beyond a certain size. The University authorities have therefore determined to limit the size of the entering class in the future. The limitation will come into effect next session.

It would therefore appear that we cannot reach ideal conditions as to the size of classes in all years until the session 1926-27 has been passed. In the meantime every effort is being made to make the teaching of these large classes as efficient as circumstances will permit.

A considerable amount of progress has been made during the year in recasting the Rules and Regulations of the Faculty concerning the Methods of Registration, Attendance and the Conduct of the Examinations of Students.

In the Preliminary Science Departments, the only change in the personnel of the permanent staff has been that J. M. D. Olmsted replaced A. C. Redfield as assistant-professor in Physiology. Dr. Olmsted was a Rhodes' Scholar in Oxford where he took the Degree of Master of Arts. He is also a Doctor of Philosophy of Harvard University. The Temporary Appointments, such as those of Fellows, have not been sufficiently numerous to permit adequate oversight of the classes, but it is expected that this will be rectified during the session 1921-22.

In the Final Departments several changes have taken place. Professor I. H. Cameron has retired from the Chair of Surgery and Clinical Surgery which he has occupied for twenty-three years. For ten years previous to that date he had been professor of Surgery and Surgical Pathology. He therefore held a senior position in the Department of Surgery continuously since the Re-organization of the Faculty in 1887. In 1897 he succeeded the late Professor W. T. Aikins as Head of the Department of Surgery. Throughout this long period of thirty-three years Professor Cameron has served his Alma Mater with great distinction both in the Faculty of Medicine and in the Senate of the University. In recognition of his scholarly attainments and of his service, the University of Edinburgh conferred upon him the Honorary Degree of LL.D. His distinguished career was also recognized abroad when he received, *honoris causa,* the Fellowships of the Royal College of Surgeons of England, of the Royal College of Surgeons of Edinburgh and of the Royal College of Surgeons of Ireland. More recently the honorary Fellowship of the American College of Surgeons has been conferred upon him. His retirement from the active teaching staff is a matter of sincere regret to his colleagues. He has been created an Emeritus Professor. He remains a member of the Senate and, it is hoped, his valued service will long be retained in that capacity for the University.

In the Department of Ophthalmology and Otology there has been the retirement of Dr. G. H. Burnham. He was appointed associate-professor in 1896 and became full professor in 1903. He now becomes Emeritus Professor. In the Department of Medical Jurisprudence Dr. N. A. Powell has retired from the Chair. Dr. Powell was appointed in 1903 in succession to the late Dr. Bertram Spencer. Both Dr. Powell and Dr. Burnham have rendered most valuable service to the University over a long period of years. Each, on his retirement, has been created an Emeritus Professor.

The Chair of Medical Jurisprudence has been filled by the appointment of Dr. Gideon Silverthorn. For some years Dr. Silverthorn has been a member of the teaching Staff in Surgery. He is a graduate of the University of Toronto, and is an acknowledged authority in Medico-legal matters. His wide experience in such matters will be of great value in the discharge of his duties in connection with the Chair.

The Chair of Pathological Chemistry, vacated when Professor Andrew Hunter was transferred to the Chair of Biochemistry, has been filled by the appointment of Dr. Victor John Harding. He is a Doctor of Science of Victoria University, Manchester, England, and comes to us from McGill University where he was a member of the teaching Staff in Chemistry.

Owing to the retirement of Professor Cameron, Professor Primrose was appointed interim head of the Department of Surgery until such time as a permanent appointment should be made.

Dr. Cyril Gray Imrie formerly Lecturer in Pathological Chemistry has been transferred from this University to the Department of Physiology in the University of Sheffield, England, where he assumes duty under Professor Leathes the former Professor of Pathological Chemistry in the University of Toronto.

Dr. Norman Macdonnell Keith, a member of the full time Staff of the

Department of Medicine of this University has been transferred to the Medical Department of the Mayo Foundation, Rochester, Minnesota, where he is in charge of the Cardio-Renal Clinic.

In the Department of Anatomy it has been found extremely difficult to conduct the work in Practical Anatomy because of the inadequacy of space and the difficulty in securing a sufficient amount of material in the Dissecting Room for the large classes. It is expected that these difficulties will be overcome in the near future by the erection of a new anatomical building, by the reduction in the number of students in attendance and by the enlargement of the Staff.

The other laboratory departments have been grossly over-crowded during the session. It has been necessary to divide the classes into groups and to repeat much of the instruction in order that the work should be covered. This has entailed great hardship on many members of the teaching Staff, particularly because of the fact that it robs them of time which should be available for Research. When the number of students has been reduced it will be possible, with the present Staff, to allow each member a reasonable amount of uninterrupted time for this essential part of his work.

The new (six years) course has been in operation for two years. The experience gained during these two years has shown that the combination of a certain amount of Arts work with the regular Medical curriculum is a success. During the first year of the course each student must select one Arts subject, and the following was the enrollment in each option so chosen—College English 53, Mathematics 13, French 77, German 8. During the second year, when two options were required, one of which must be an Arts subject, the numbers in each were—Economics 58, Psychology 40, History 8, Mathematics 13,College English 8, Quantitative Chemistry 50, Biology 56, Physics 17, Philosophy 22.

During the session Post-Graduate Instruction has been organized and undertaken in a more effective manner than has hitherto existed. This has been accomplished partly by offering short review clinical courses during vacation periods of the session and partly by sending lecturers to different parts of the Province. The clinical courses given by different members of the regular teaching Staff during vacation have been well attended and highly appreciated. One such course was given at Christmas vacation and another during the latter part of the month of May. A schedule advertising a series of lectures has been issued to our Medical graduates throughout the Province. This has been done in the shape of a "Bulletin" which has been circulated from time to time and which contains, in addition to the schedule of lectures, a short series of articles on practical subjects indicating the most recent methods of diagnosis and treatment of disease. The courses of lectures have been taken advantage of by numerous groups of medical men and medical Societies throughout the Province which have applied to the medical faculty for the courses advertised and to which lecturers have been sent.

In spite of the severe handicap to the conduct of Research already alluded to, a considerable amount of Research work has been accomplished. A full account of this will be included in the special memorandum on Research which accompanies this Report.

The annual donation of $50,000.00 to this medical school by the Rockefeller Foundation is now available and it is expected that it will be used largely to develop the Department of Surgery and other clinical subjects along lines similar to those which have proved so successful and have been made possible, in the Department of Medicine by the endowment of the Chair by Sir John and Lady Eaton. The Rockefeller Gift will also assist in the development of Departments other than Clinical. There is every reason to believe that if the proposed plans are carried into effect the Medical Department of this University will stand in the very front rank among Medical Schools of this Continent.

(3) REPORT OF THE DEAN OF THE FACULTY OF APPLIED SCIENCE AND ENGINEERING (C.H. MITCHELL, ESQ., LL.D.)

The Session now concluding, the second since the termination of the war, has been not only most satisfactory but marked in this Faculty by several features which are of interest.

The incoming first year, much smaller than that preceding, has indicated the effect of the increased entrance requirements which now, in the light of the annual examinations just concluded, seem to be entirely justified. The completion of the new building and its occupation by the Departments of Electrical Engineering and Applied Mechanics not only places these portions of the Faculty in an exceedingly favourable position but has enabled a certain readjustment of space in the old Engineering Building which will be very advantageous to those Departments housed there. The inauguration of instruction at the summer survey camp at Gull Lake in August last is a progressive step making for increased efficiency and economy in time and space during the regular academic Sessions.

By a curious coincidence the total number in attendance in this Faculty this Session was practically the same as last year, 807 divided amongst seven departments, the largest being in Electrical Engineering and the others being Mechanical, Civil, Chemical Mining, Architectural and Mettalurgical, decreasing in the order named. The interesting feature of these figures is the clearly indicated swing towards the specially industrial branches of the Engineering profession which indeed is a reflection of the situation throughout Canada at the present time. The following table shows the distribution of students in these various departments by years:—

Year 1920-1921.

	First Year	Second Year	Third Year	Fourth Year	Total
Civil Engineering	29	58	30	37	154
Mining Engineering	13	25	16	12	66
Mechanical Engineering	44	56	33	26	159
Architecture	10	11	3	9	33
Analytical Chemistry	..	..	..	15	15
Chemical Engineering	32	66	38	10	146
Electrical Engineering	60	93	40	23	216
Metallurgical Engineering	3	9	3	3	*18
	191	318	163	135	807

*In addition to these in the regular Metallurgical Engineering there are 26 in Mining and 40 in Chemical Engineering of third and fourth years taking Metallurgy.

There is still a large proportion of soldiers in each year much decreased of course in the first year. It is gratifying to observe that they have done exceedingly well in the annual examinations just concluded. Of the 133 who passed the fourth year examinations 77 were soldiers and out of the 50 who obtained honours 31 were soldiers. Of the 149 who passed the third year 64 were soldiers and of the 48 who obtained honours 14 were soldiers. Of the 283 who passed the second year 114 were soldiers, and of the 72 who obtained honours 30 were soldiers. Of the 164 who passed the first year 43 were soldiers. Those students who have had their education dislocated by the war may now be said to have recovered their places and it is gratifying to realize that they are now practically all back to normal.

Amongst the students themselves there has been a gratifying improvement in the character of their activities and in their relationship to the profession generally; this was particularly evidenced in their participation in various professional activities in the City and Province, notably in the Annual Meeting of the Engineering Institute of Canada which this year was held in Toronto. Many of these students in their control of student affairs and in their technical, academic and athletic interests have notable displayed their powers of organization and executive which are valuable features of their education in Engineering.

The Department of Civil Engineering and Applied Mechanics is being slightly reorganized mainly consequent on its removal to the new building. While the various types of equipment in testing laboratories have been fully employed there is much need for further equipment. The Departments of Surveying and Drawing, closely allied with this, have been taxed during the year with the large numbers of students; in Surveying there were 270 and in Drawing 697 carried though the various courses in this Faculty whilst there were 33 and 27 respectively of the Faculty of Forestry also provided for.

In Electrical Engineering the value of the new building is already being realized, although the removal into it will not be entirely completed until this autumn. With the two groups of laboratories in direct and alternating current and with the special instrument, high tension, radio telegraphy and research laboratories it is expected that henceforth much more effective work can be done.

In the Department of Mining Engineering there has been some advantageous modification and re-arrangement of work and an increased number of students has been accommodated. 72 students have been taking the work in the Assay Laboratory and 82 in the Milling and Mining Laboratory.

The Mechanical Engineering Department has suffered through want of additional apparatus much needed in the Steam and Hydraulic Laboratories. When it is considered that during the past Session 207 students of third and fourth years attended the Thermodynamics Laboratories each week and 197 of the same years attended the Hydraulic Laboratory each week an idea can be gained of the work performed and it must be kept in mind that the coming Session will be much heavier in point of numbers. This Department suffered a loss the past year by the withdrawal of Professor Arkley to a post in another University.

The Department of Architecture has been strengthened during the year by the addition of another Associate Professor on Design, Professor Adrian Berrington, late of Paris. The re-arrangement of space in the Engineering Building has provided this Department with very much increased accommodation. The Annual Exhibition of the Architectural Club at Hart House in March was again a very fine indication of the excellence of work done by the students in this department.

Chemical Engineering has been very crowded. The problem of providing for the large second year is comparable only with that confronting it with the same large number next year when it is going to be almost impossible to carry them. If this Department continues to grow in numbers there will be a very serious accommodation problem in the Chemistry and Mining Building.

The Department of Metallurgical Engineering has had an opportunity for expansion during the year and it now occupies the east end of the Chemistry and Mining Building, main floor. The authorization of an Assistant Professor will greatly increase its efficiency and with the new equipment and space much is now expected of this Department.

The School of Engineering Research has now fully justified its organization within this Faculty. The grouping of the seven departments of this Faculty into one organization for research in this manner has very much simplified the administration, has co-ordinated the effort and has produced an economic efficiency which is most gratifying. During the past year the progress of the work of research has been as great as could reasonably be expected bearing in mind the load of lectures and laboratory teaching born by members of the staff. No 2 Bulletin with the results of the year's work is now in process of publication. It is interesting to note and it is with a degree of satisfaction that the members of this Faculty, busy as they have been with the regular work of instruction, have been able during the past twelve months to carry out researches on 30 subjects, divided as follows:—4 in Civil Engineering, 3 in Mining Engineering, 5 in Mechanical Engineering, 11 in Chemical Engineering, 4 in Electrical Engineering and 3 in Metallurgical Engineering.

This Faculty sustained last Autumn a very grave loss in the death of Dr. W. H. Ellis, late Dean of the Faculty; his presence with us as Professor Emeritus was regarded as of the greatest value, the Faculty relying on him very much for his wise counsel and advice. His absence is greatly felt.

(4) REPORT OF THE DEAN OF THE FACULTY OF FORESTRY.

(DR. C. D. HOWE.)

The Faculty of Forestry completed the year with the largest enrolment of students since it was established in 1907. According to classes, they were distributed as follows: First Year 20, Second Year 17, Third Year 10, Fourth Year 6, Special 1, Occasional 1—55 in all.

The year's graduates are six in number, five from the four-year course and one from the six-year course. They all had positions waiting for them, two being employed by the Dominion Forestry Branch at Ottawa, two by the British Columbia Forest Branch, and two by private companies, the Riordon Company and the Wayagamack Pulp and Paper Company, both in Quebec.

Owing to the depression in the pulp and paper trade only half as many undergraduates are employed by private companies as last summer. However, a much larger number are being utilized by the Ontario Forestry Branch and thus an otherwise embarrassing condition has been avoided. The Province is using 16 of the undergraduates for the summer months, the Dominion Forestry Branch 15, pulp and paper companies 11, the Entomological Branch 1, and private employment not related to forestry 6.

Suggested lines of development for the Faculty of Forestry were outlined to you in last year's annual report. These were elaborated in the report laid before the Royal Commission on University affairs, wherein four things were specifically recommended, namely: (1) a permanent practice camp and forest experiment station, (2) postgraduate courses leading to the degree of Master of Forestry, (3) a forest rangers' course, and (4) a forest products museum. The materialization of the first three of the above items would involve a capital expenditure of approximately $13,000 and an increase in the annual budget of at least $9,000 for current expenses, in addition to the cost of a new building. We shall expect the fulfilment of these plans within the next few years, for without it we cannot attain our full measure of usefulness in the forestry education of the Province and Dominion.

(5) REPORT OF THE DEAN OF THE ONTARIO COLLEGE OF EDUCATION.

(DR. W. PAKENHAM).

The Ontario College of Education has completed its first year under its new name. Its first purpose is to train High School Assistants and Specialists for the schools of Ontario; its second to give instruction in Advanced Education. In fulfilling these purposes the College is in reality a Graduate School. During the Session it enrolled in its course for High School Assistants and Specialists ninety-seven students, in its courses for degrees in Pedagogy one hundred and thirteen, and its courses for the degree of M.A., under the Board of Graduate Studies eighteen. All these students were graduates in Arts.

Soon after the beginning of the Session a course for the Elementary certificate in Art was instituted. Twenty-four completed this course. To equip graduates in Arts for public school posts, the students in the High School Assistant's course were offered the option of a supplementary course for First Class Public School certificates. Twenty-six accepted the offer. At the same time the course for the Ordinary certificate in Household Science was transferred to temporary quarters in the College with seventeen students in registration.

The transfer of the Faculty Entrants or First Class students to the Normal Schools has reduced the total attendance at the College. But it has enabled the staff to give more time to the training of the High School Assistants and in particular to the practice-teaching in the University of Toronto Schools.

The transfer of the course for Ordinary certificates in Household Science and the emphasis now placed upon the course in Physical Training have made still more marked the limitations of the present buildings. It is a satisfaction to note that in its last session the Legislature made an initial appropriation of $50,000 to complete the buildings.

(6) REPORT OF THE DEAN OF THE FACULTY OF MUSIC.

(DR. A. S. VOGT).

The registration of students for the course leading to the degree of Bachelor of Music was as follows: First Year, 9; Second Year, 3; Third Year, 4; Occasional students, 2; total, 18.

The number of candidates entering for the University's Local Examinations in Music during the year totalled 613. Of these 511 entered for examinations in piano playing; 26 in singing; 1 in violin; and 75 in the Theory of Music. Successful candidates totalled 553.

A series of eighteen lectures was delivered by members of the Faculty as follows:

Healey Willan, Esq., Mus. Doc., F.R.C.O.

January 10—"Various Chords of the Seventh."
January 24—"Modulation."
February 7—"Harmonisation of Melodies."
February 21—"Counterpoint" (with special reference to the minor key).
March 7—"Counterpoint" (combined species).
March 14—"Fugue."
January 14—"Bach's Church Cantatas and their Libretti."

Albert Ham, Esq., Mus. Doc., F.R.C.O.

January 28—"Bach, the Church Organist, and his Predecessors."
February 10—"Early English Composers of the Latin School."
February 17—"Church Anthems."

F. A. Mouré, Esq.,

January 17—"Some Old English Worthies."
January 31—"The Transition from the Classical to the Romantic Period."
February 14—"The Later Romantic School."
February 28—"Programme music."

H. A. Fricker, Esq., M.A., Mus. Bac., F.R.C.O.

January 21—"Bach's 48 Preludes and Fugues."
February 25)
March 4) The Choral and Orchestral music performed at the Mendelssohn
March 11) Choir Concerts, April 11, 12 and 13.

The special series of organ recitals given during the season by F. A. Mouré, Esq., University Organist, again created much interest and were attended by large audiences of students and music lovers generally. Mr. Mouré's programmes covered a wide range of organ music illustrative of the most important and attractive features of the foremost schools of organ composition, classical and modern.

Important changes in the relation of the Toronto Conservatory of Music to the University of Toronto.

An event of outstanding importance in the history of music in Canada transpired during the year in the completion of the steps necessary to pass the trusteeship of the Toronto Conservatory of Music from private hands to the University of Toronto. The Conservatory was founded in 1886 and after some years of operation, was established as a trust in the interests of music.

Realizing that it is essential that standards of music should, as far as possible, be set for the whole Province, and that this could be done only under the control of the Provincial University, those interested in the Toronto Conservatory of Music handed over to the Board of Governors of the University of Toronto the important trust held by them for many years for the advancement of musical education in Canada. This has been carried out under the terms of an Act of the Legislature passed in 1919. The management of the Conservatory will, therefore, in future, be directed by a special Board appointed by the University and responsible to the University Board of Governors.

It is confidently expected that real advantage will accrue to the general cause of music through the fusion of the Conservatory with the University—the Conservatory, through the agreement sanctioned by Act of Parliament, passing over to University control as a school of Music with well-established international prestige, fine equipment, and unsurpassed location. A large department of educational activity is thus being brought under the control of the Province of

Ontario without undue burden of oversight or expense to the University of Toronto or to the Province.

This new relation is not intended to interfere in any way with the development of other musical institutions, but it is confidently expected that it will tend to establish and maintain higher standards of music, and to standardize examinations under the supervision of the Faculty of Music of the University of Toronto, which examinations shall be open to the students of all other conservatories and musical bodies.

As the annual announcements relative to the Licentiate and Local Examinations in Music of both University and Conservatory had already been issued for the year, no change was made in the examination arrangements of either institution for this season. The University's Local Examinations in Music through the new arrangement will, however, in future be taken over by and conducted through the Conservatory.

(7) REPORT OF THE CHAIRMAN OF THE BOARD OF GRADUATE STUDIES.

(PROFESSOR J. PLAYFAIR McMURRICH).

The number of students enrolled for graduate studies in the Session 1920-1921 showed a slight increase over the preceding session, the total being 163. Of this number 150 were in attendance at the University and 13 were studying in absentia; 113 were men and 50 women. According to their geographical distribution the students may be classified as follows:

Residents of the Province of Ontario	135
Residents of other Provinces	16
Residents of other Countries, including Newfoundland	12
	163

and as regards their preliminary training as follows:

Graduates of the University of Toronto	118
Graduates of other Universities	45
	163

54 were members of the teaching staff of the University and 6 others were holders of fellowships but not engaged in teaching.

Their distribution in the various departments, based upon the subject chosen as the major study, was as follows: Anatomy, 1; Astronomy, 2; Biochemistry, 2; Biology, 3; Botany, 12; Chemistry, 15; Classics, 6; English, 16; Food Chemistry, 2; Forestry, 1; German, 1; Geology, 3; History, 9; Household Science, 2; Mathematics, 2; Medicine, 2; Mineralogy, 1; Oriental Languages, 4; Pathological Chemistry, 1; Philosophy, 24; Physics, 11; Physiology, 4; Political Science, 12; Romance Languages, 9; Theory of Education, 16; Zymology, 2.

The degrees sought are shown in the following table:

Candidates for the degree of Ph.D.	34
” ” ” ” ” M.A.	95
” ” ” ” ” M.D.	3
Students not candidates for a degree	31

During the session 52 candidates completed the requirements for the degree of M.A., 3 those for the degree of Ph.D. and 2 those for the degree of M.D. The titles of the theses submitted for the degree of Ph.D. were as follows:

N. A. Clark: The Growth Rate of Yeast.

W. A. Lawrence: The Friedel and Crafts Reaction; some substituted Phthalic Anhydrides with Aluminum Chloride and Toluene.

M. E. Smith: The Friedel and Crafts Reaction: the Carbomethoxy-benzoyl Chlorides with Aromatic Hydrocarbons and Aluminum Chloride.

For some years, as the number of students pursuing Graduate Studies has increased, the lack of some common bond of organization has become more and more apparent. The work of the Graduate Student is specialized; he must necessarily spend the greater part of his time in the Department he has chosen and so will miss that opportunity for association with his fellow students in other Departments, which is one of the most important privileges and advantages of University life. To overcome to a certain extent the disadvantages of this isolation the graduate students some years ago organized themselves into a Graduate Students' Club which met from time to time for the discussion of matters of common interest and for social purposes. Such meetings, however, were only occasional, the Club having no definite meeting place, no habitation it could call its own. When the University Press moved to its new quarters, vacating rooms formerly occupied in the Library Building, one of these rooms was placed at the disposal of the Club to serve as a Graduate Students' Common Room, the necessary furniture and equipment being supplied partly by the University and partly by the generosity of the Student Medical Society and of the University Women's Club.

Good use was made of this Common Room after it became available and it is hoped that it may increase its usefulness in the future. It is, however, but a step towards remedying a serious defect in the organization of graduate studies. At present the graduate students have no such definite official status as is accorded to the undergraduates, an anomalous condition which becomes all the more marked in the case of graduate students who come to us from other Universities. It is hoped that this unfortunate condition of affairs will be corrected in the near future.

(8) REPORT ON RESEARCH.

PSYCHOLOGY, UNDER DIRECTION OF PROFESSOR E. A. BOTT.

1. *Psychological Tests for College Entrance Candidates.*—Last autumn a committee of the Staff decided that the value of such tests from the University point of view should be investigated. Through Professor Thorndike 500 sets of the Columbia material were procured at a reduced price. The cost of the material ($200.00) was met by a grant of $125 from the University and a like amount from the Committee for Mental Hygiene, a part of the latter sum being for clerical assistance.

A portion of the material was given to selected classes in the University, and subsequently by arrangement with the Department of Education, Toronto Board of Education and Principals the remainder was given to Form IV Collegiate pupils who will be writing matriculation this summer. Professors Sandiford, Lane, Pratt and Father Oliver assisted in giving the tests. The marking and collating is being done by the Psychology staff. The selection of students was as follows:

College of Education (teachers in training)	67	
Victoria College (First and Second Years)	40	
Faculty of Medicine (Second Year)	40	
St. Michael's College (First Year)	77	
		224
Parkdale Collegiate	44	
Oakwood Collegiate	39	
Jarvis Collegiate	41	
Riverdale Collegiate	39	
U. T. S. Form IV	40	
		203
		427

The purpose of this investigation is two-fold:

(1) To determine the prognostic value of the tests by measuring the degree of correspondence of pupils' ranking by the test score with their academic standing averaged over a number of years and verifying the result by their subsequent College record.

(2) To analyze the test results in detail with a view to adapting the material more perfectly for Canadian students.

Numerous problems are involved in each of these objectives which can only be solved by continuing the work on a statistical basis over a considerable period. The results to date are very promising judging from the correlations between the test scores and the previous marks of the students—this year's standing being not yet available.

The plan of investigation has received the fullest support and co-operation of Registrar Anglin, Inspector Rogers and Collegiate Principals and it is hoped the work can be carried forward until its practical value in the grading, promoting and advising of students who are planning to enter college has been demonstrated. Professor DeLury has suggested that all first year students in Mathematics be given the test at the beginning of next session and that their scores be made the basis of grouping for the year's instruction. Such an experiment would be of the greatest value.

2. *Analysis of voluntary muscle action.*—This problem is related to two fields of investigation. On the practical side during the past decade there has been considerable work on Applied Motion Study to determine the type of manual motion which is most economical of time and effort for a given job or operation. These studies have been conducted from the engineer's point of view with little attention to the mechanics of the body or the psychological factors involved in its functioning. On the theoretical side there are views regarding the conditions of enervation in opposed muscle groups. These however are based on physiological experiments upon anaesthesized animals.

The object of the present research is to discover the principles of voluntary muscle action by a direct method. A large number of subjects are required to perform a small movement of the wrist under accurately controlled conditions wherein the motion is graphically registered. This was made possible through the construction of special apparatus of sufficient strength and precision. A set of nine graphs under different conditions of position and load has been taken with forty medical students. Measurement of these curves reveals the nature of the movement throughout flexion and extension. Very definite results are being found. This part of the problem will be completed in the course of a few weeks.

The next step, which we wish to undertake next session, is to investigate the time relations of the voluntary nerve impulses to antagonistic muscles which produce the type of motion we have found to be characteristic. In this way the facts of muscle action can be related directly with a theory of ennervation. The requirements for this investigation would be substantially the same as have been available for the problem this year.

Physics, Under Direction of Professor J. C. McLennan.

A.

1. *Ultraviolet Spectroscopy.*—This research is being carried out by Professor J. C. McLennan assisted by P. Blackman and P. A. Petrie. It consists of two divisions. In the one, the aim is to map out the spectra of all the elements with a fluorite spectograph down to the wavelength $\lambda = 1400$ å. u. In the other, the aim is to map out, with the aid of a vacuum grating spectrograph, the spectra of all elements down to approximately $=250$ å. u.

2. *Series Spectra.*—This investigation is being carried out by Professor McLennan in collaboration with Mr. W. W. Shaver. The object is to work out the series spectra of the elements Lead, Tin, and Thallium. No complete series spectra for these elements have hitherto been identified.

3. *Investigation on the relations existing between certain types of series spectra and the corresponding configurations of the electron systems in atoms and of the elements mercury, sodium, helium, and hydrogen.*—This investigation is being carried out by Mr. H. J. C. Ireton who is at present working on the element mercury.

4. *On the frequency differences in the Balmer double series of Hydrogen.*—This investigation is being carried out by Professor McLennan in collaboration with Mr. P. Lowe. Its object is to measure by interferometer methods, using Lummer plates and an echelon spectrograph, the frequency differences between the doublets of the series higher than the first two numbers, these having already been determined by Merton.

5. *On the production of triatomic Hydrogen by the action of extremely short wavelengths.*—This investigation is being carried out by Mr. W. W. Shaver. In this investigation the source of the light is the arc in Helium. By means of a specially designed arrangement, the light from this arc will be projected into a stream of Hydrogen. The production of H_3 will be detected by suitable chemical reagents. It is proposed to apply the method to investigate the effect of short light waves on nitrogen and other gases as well, with a view to seeing whether a method can be worked out for the production of ammonia, etc., by the action of light in place of a catalyst.

Note: Investigations Nos. 1, 2, 3, 4, and 5 are part of a general problem which is being investigated spectroscopically, namely, the investigation of the structure of the atoms of the elements and the energy required to ionise the atom of the elements.

6. *On the condensation methods of studying the recoil particles from Helium and Hydrogen and other gases produced by the action of alpha rays.*—This investigation is being carried out by Professor McLennan, in collaboration with Mr. W. C. McQuarrie. The method is based on C. T. R. Wilson's Cloud Experiments.

In this investigation it is hoped to get visual confirmation of certain theories of atomic disintegration which have been put forward. The general object of such investigations as this one is to see whether or not it is possible to work out a method of tapping the stores of energy known to be stored up in the atoms of the elements. It is in this direction that man must look for primary supplies of energy.

7. *Study of the magnetic properties of Heusler Alloys and other ferromagnetic bodies by means of Rontgen Rays.*—This investigation is being carried out by Mr. J. F. T. Young. It is hoped by testing the differences in the effects obtained with Heusler's Alloys and with simple mixtures of their constituents, viz., aluminium, manganese and copper, to get at the origin of the ferromagnetic property which is known to characterise the alloys. The results of this investigation should have a direct bearing on the solution of the problem of ferromagnetism generally.

8. *Piezo-electric studies of the pressures generated by explosions of mixtuures of various gases with air and with each other, and also by explosions of mixtures of the various constituents of paraffin oils with air.*—The object of this investigation which is being carried out by Mr. H. J. C. Ireton, who is following up the work of last year by Mr. H. R. Foreman, is first of all to collect important data on explosion pressures generated by various mixtures of gases and vapours and secondly to see if paraffin oils cannot be conserved by using, (for purposes for which it may be found they are the most suitable), the products obtained by fractional distillations.

9. *Investigations on the behaviour and properties of helium-filled incandescent filament lamps and of helium enclosed arc lamps.*—This investigation is being carried out by Professor McLennan in collaboration with Mr. F. W. Kemp, and Mr. Dobson, Director of the Ontario Hydro-Electric Laboratory, Strachan Avenue, Toronto. The object of this investigation is to see if helium can be used with advantage in the construction of illuminating agents. Some progress has already been made in producing a fairly efficient helium-filled lamp of the pointolite variety.

10. *Investigation of the natural gases of Alberta to see if they contain any of the rare gas Krypton and of the newly found isotopic form of Helium.*—This investigation is being carried out by Professor McLennan in collaboration with Mr. F. W. Aston, of the Cavendish Laboratory, Cambridge, England. Should a supply of Krypton be found available in Canada it would be of immense value to the incandescent lamp industries of the country. The investigation is being carried out by the use of the positive ray analysis method worked out by Sir J. J. Thomson and Mr. Aston.

11. *The Liquefaction of Helium.*—This investigation which is a costly one, is being carried out by Professor McLennan assisted by Mr. G. M. Shrum, in collaboration with Professor McTaggart, and with Professor Dawes, of McMaster University and Mr. John Patterson, Physicist to the Meteorological Office, Toronto.

This investigation involves the production of Liquid Air in large quantities and the production of Liquid Hydrogen in moderate quantities. The successful production of liquid Helium would at once open up a large field of investigation to the physicists, chemists, physiologists, zoologists, and botanists of Canada, for it would enable us to study the properties of materials including chemical reactions the life of bacteria, spores, etc. at the lowest temperature attainable. This work should be carried on now that Helium is available in quantity in Canada. Full details of investigations in this field will be found in a paper by Professor McLennan on "Helium, its Production and Uses." Trans. of the Chem. Soc.

Up to date the liquid air plant has been installed and is operating successfully. The hydrogen liquefying plant has been completed and with it we have made liquid hydrogen on a number of occasions. The helium liquefaction apparatus is nearing completion and at present we are installing apparatus for purifying hydrogen and helium prior to using it for liquefaction.

B.

RESEARCH WORK NOW BEING CARRIED OUT ON THE SUBJECT OF COLLOIDAL SOLUTIONS UNDER THE IMMEDIATE DIRECTION OF PROFESSOR E. F. BURTON.

Students giving part time to the work: Miss I. Giles, M.A., and Mr. E. D. MacInnes, B.A. The work in hand is a continuation of investigations begun by Professor Burton at the Cavendish Laboratory, Cambridge, England, in 1904.

Among the many interesting properties of Colloidal Solutions, such as Ferric Hydroxide, Ordinary Black Ink, Gold Suspensions, etc., two are of special importance: the fact that the particles are all electrically charged and the coagulative action of even small traces of electrolytes. At the present time, experiments of technical importance are under way as follows:

1. *Coagulation of Colloidal Solutions by Electrolytes.*—In a recent paper on this work we believe that we have added a very important contribution to this phase of colloidal work which has been a vexed one for some years.

2. *Laws of Concentration of Colloidal Particles in Suspension.*—A continuation of experimental verification of the laws regulating the distribution of particles of various sizes in suspension.

3. *Experiments to determine the value of the mass of particles directly and the charge borne by them.*—These investigations comprise direct observation by ultra-microscope of individual particles in colloidal solutions. The application of the knowledge of colloidal solutions is very wide-spread in industrial life as well as in the study of physiology. Such manufacturing operations as we have in dyeing, tanning, rubber making, cement construction, ceramics, etc., are dependent for their advancement on a knowledge of the action of colloidal solutions. We feel that we are doing authoritative work in this field.

C.

RESEARCH WORK BEING CARRIED ON BY PROFESSOR L. GILCHRIST.

The following is a statement of the research work on which he has been engaged:

1. *Study of the Electrical Stimulation of Nerves and Muscles.*—This work is carried on in collaboration with Miss McCullough in the Physiology Building under the auspices of the Military Research Committee of the C.A.M.C.

2. Study of the application of Planck's Law of Radiation to the Production of Temperature Standards and change of state.

3. Study of the Width of X-Ray Spectrum lines and the effect of Temperature of the Target on the lines.

The work of 2 and 3 was carried on at the Clarendon Physical Laboratory at Oxford during the summer of 1920.

D.

RESEARCH WORK BEING CARRIED ON BY PROFESSOR JOHN SATTERLY.

1. *The Advance of the Ripple which appears in front of an ascending column of liquid.*—When a column of liquid rises up within a glass tube which has been previously wetted, a well defined ripple appears around the sides of the tube a short distance above the liquid surface. The research consists in studying the formation and advance of the ripple and their relation to the velocity and nature of the liquid, the diameter and nature of the tube, the time of draining and so on. The work may have application in the flotation process of ore separation.
erals, rocks, and waters for radioactive analysis. These analyses are performed,

2. *Radioactivity.*—At different times prospectors bring in samples of min-
and the methods employed depending on the specimen, and the prospector profits by the information provided.

E.

RESEARCH WORK BEING CARRIED ON BY PROFESSOR McTAGGART.

An important branch of research in Physics is the examination of electrical effects existing at liquid surfaces. In general, a small electric charge is found at any such surface as for example—around small particles in suspension in a liquid like sediment in water—or, in dyeing processes, around the fibres of the fabric when dipped in the solution, a similar charge exists at the boundaries of plant and animal cells and its influences on growth and disease are not fully understood.

The research is being limited at present to a study of the electric effects at the surface of aqueous solutions in contact with air or any gas.

Two papers on the subject have been published by the author:

1. Phil. Mag. Feb. 1914, p. 298.
2. Phil. Mag. Sept. 1914, p. 367.

The work has a bearing on such industrial problems as:

1. The purification of a water supply.
2. The production of stable suspensions in liquid, as for example, a soluble cocoa.
3. The action of mordants in dyeing.
4. Electrification in plant cells and cell growth.
5. Electrification in animal cells and its influence in health or disease.
6. The action of catalysing agents.

BOTANY, UNDER DIRECTION OF PROFESSOR J. H. FAULL.

Papers have been published as follows:

1. "Some Characters of Xylem Tissue in Cycads." Botanical Gazette, December, 1920.
2. "The Seeds of Poisonous Weeds in Concentrated Feeds." Canadian Veterinary Record, November, 1920.
3. "Canadian Plants Injurious in Hay and Coarse Feeds." Canadian Veterinary Record, March, 1921.

4. "Longevity of the Seeds of Cereals, Clovers and Timothy." American Journal of Botany, June, 1920.

(The last paper was published during the University year 1919-20, but was too late to be included in the report for that year.)

In addition to the above the following projects are under way:

1. *Poisonous Plants of Canada.*—In collaboration with Professor Thomson, a book on this subject has been prepared and is now practically ready for publication. It is for use as a text book for Veterinary students, but there is also an outside need in Canada and the United States as well. It is illustrated by photographs and drawings, and aims to set forth in simple language, the published conclusions of other investigators, as well as the writer's results with poisonous weed seeds in ground feeds. It differs from any former work in two ways. The plants have been grouped on the basis of the conditions under which they cause trouble rather than strict botanical sequence, so as to make the volume more useful to veterinarians and stockmen. There is included a key, based, not on botanical characters but on symptoms.

2. *Anatomy of Cicuta maculata.*—This project was undertaken because of the need for knowledge of the histology of this poisonous plant in the analysis of stomach contents in cases of poisoning. As the work progresses it is proving equally interesting from the standpoint of comparative anatomy.

3. *Investigation of Poisonous Weed Seeds.*—This project is following two lines, pharmacological and histological. In the former, the Pharmacology Department of the Faculty of Medicine is co-operating. Supplies of pure seed have been obtained and are being fed to various small animals and their effects noted. For practical purposes these effects should be correlated with their effects on other animals. In the second place, as various seeds are proved to be poisonous their histology will be worked out so that they may be identified microscopically when ground up in concentrated feeds.

ZYMOLOGY, UNDER DIRECTION OF PROFESSOR H. B. SPEAKMAN.

Earlier in the session the Department was transferred from the old laboratories to new and larger quarters situated in the Medical Building. The work of the Department has been improved by being brought into closer contact with related subjects. In addition, it is now possible for students to enter more fully into the life of the University.

During the year several new fields of research have been opened, and a broader basis given to our work. At the present time none of the work is completed and ready for publication. This is due in part to the fact that at the commencement of the session two months were lost owing to delays in the arrival of essential equipment for the laboratories.

Mr. Wynne has continued his study of the influence of numerous acids, over a wide range of concentration, on the fermentation of starch. His results are not only of interest as a source of new light on the biochemical mechanism of a particular organism, but are of value from the general physiological standpoint.

During the second term Miss Howell has made preliminary observations in connection with the influence of X-ray treatment on the growth and metabolism of some of the lower plant forms, particularly molds and yeasts. This is a problem which, in addition to its scientific interest, may yield results capable of clinical application. The work is being done in co-operation with the Department of Physics, on behalf of the Medical Research Committee of the Department of Health, Ottawa.

In connection with the application of the work of this Department in the solution of economic problems two investigations have been carried out. Mr. Berkeley has endeavoured to find means whereby the abundant supplies of sulphite liquor in this country, now being wasted, could be utilized in general fermentation industries. Although the problem is an old one, as is shown by the literature on the subject, he has made a contribution to its solution by studying the effect of the liquor on pentose fermenting bacteria. The pentose sugars are present in large amounts, and are not fermented by the great majority of yeasts. For this reason the yield of ordinary alcohol from sulphite liquor, fermented by yeast, is very low. The pentose fermenting bacteria are characterized by their valuable end-products. Mr. Berkeley's results show that eventually these sugars will be utilized. He has presented a full report on this work to the Advisory Council for Industrial and Scientific Research.

Mr. Robinson has investigated in a somewhat similar manner the possibility of utilizing molasses. By very convincing experimental results he has shown that inhibition of the fermenting cells is due to a high concentration of soluble salts in the molasses. This obstacle has been overcome, and the yields of acetone and butyl alcohol are equal to those from starch in commercial plants. His work has been the subject of several reports made to the Atlas Powder Company, Ltd., which company has supported this investigation.

Mr. Robinson has been able in connection with the work to make a study of the relationship between molecular structure in several of the groups of sugars and their fermentability by the same bacillus. His results are of theoretical value and will probably be ready for publication later in the year.

Mr. Forsythe during his fourth year as a student in the Department of Chemistry has taken his elective special subject in this Department. He has started a study of the fermentation of glucose by bacillus aceto-ethylicum, and already valuable results have been obtained.

BIOCHEMISTRY UNDER DIRECTION OF PROFESSOR A. HUNTER.

I have the honor to submit the following report upon the researches which have been in progress during the past year in the Department of Biochemistry.

(1) I have continued my study of the manner in which protein is hydrolyzed under the influence of the ferment trypsin, and of the products arising at certain stages of the reaction. This research has proved to be of greater difficulty than was anticipated, and as I am able to take it up only intermittently, the progress made has not been very rapid. Some definite results have nevertheless been obtained, and have been recently presented to the Royal Society of Canada in a preliminary note. Among other things it has proved possible to isolate a polypeptide, or mixture of polypeptides, which is particularly rich in histidine and proline, and from which lysine (and probably also arginine) is entirely absent.

(2) Mr. N. S. Clarke is engaged in work similar to my own, but dealing with a different protein. He has encountered the same difficulties as I did, and is hardly ready yet to report progress.

(3) Mr. Borsook has commenced a study of the differences in amino-acid makeup between various proteoses derived from hemoglobin.

(4) Mr. Urquhart has been studying the possibility of obtaining unsaturated acids by the action of bacteria upon amino-acids. He has conformed the observations of Raistrick upon the origin of urocanic acid from histidine, and is now endeavoring to produce cinnanic acid in a similar way from phenyl-alanine.

(5) Mr. Morrell has succeeded in working out a technique which makes possible the determination of arginine by the combined action of the enzymes arginase and urease; and has commenced a study of the kinetics of the action of arginase.

(6) Mr. Green has completed a preliminary study of the progress of protein hydrolysis under the influence of strong acids.

(7) Mr. Berkeley is studying the metabolism of certain fungi of economic importance, and has already obtained results of some importance.

PHYSIOLOGY UNDER DIRECTION OF PROFESSOR J. J. R. MACLEOD.

J. J. R. MACLEOD, S. U. PAGE, AND L. H. KILBORN—

In continuance of the investigations into the mode of control of the respiratory centre in decerebrate animals, which were published in the March number of the American Journal of Physiology, the attempt has been made to determine whether evidence of excitement first sets in at the moment when the arterial blood becomes measurably unsaturated with oxygen. To determine this important point, the minute volume of breathing has been compared with the oxygen dissociation curve of the arterial blood and with the tension of oxygen (and carbon dioxide) in the alveolar air. The results have been satisfactory and it is hoped that during the summer one or more papers will be ready for publication. The practical importance of these investigations centres on the light they throw on the mechanism for the exchange of gases between the blood and air sacs and on the effect of breathing oxygen in the relief of the symptoms of pneumonia and other forms of disease in which there is pulmonary disturbance.

J. J. R. MACLEOD—

Further work has been done on the significance of lactic acid in the animal economy and one paper was published (in the American Journal of Physiology) on this aspect of the work during the year. In the earlier months of the year the attempt was made to cause lactic acid to accumulate in the blood by "blowing off" the carbon dioxide of the blood by forced ventilation of the lungs. Such a decrease in the volatile acid of the blood, it was thought, might cause more volatile acid, such as lactic, to take its place so as to maintain at a constant level the total acid radicles in the blood. The results were negative. More recently, work has been done on the rate of disappearance of lactic acid from the organism when certain quantities of this substance are injected intravenously, as well as, on the rate at which it appears in blood after this has been removed from the body. The results in these two particulars are definite and will be published shortly. In this research the painstaking assistance of Miss M. E. Armour has been invaluable.

J. J. R. MACLEOD AND N. B. TAYLOR—

With the assistance of a grant made by the Department of Militia and Defence, work has been continued on the spread of temperature changes in living tissues during the application of heat or cold to the surface of the body. The spread of heat is measured by means of small thermocouples enclosed in hypodermic needles which are placed at varying depths in different regions of the body. The thermocouples are connected with a potentiometer and galvanometer so that very minute changes in temperature can be measured. Professor Burton of the Department of Physics has greatly assisted us in this work. Very important practical results have been secured, such as, that temperature differences spread very readily in resting muscle, in subcutaneous tissue and in the brain but that the spread is very slow in the liver and kidneys. Many of the results of these investigations have already been published during the year in the *Lancet.*

J. J. R. MACLEOD, E. C. NOBLE AND C. H. BEST—

An investigation is under way into the behaviour of the sugar of the blood in turtles. The research is designed to determine whether variations occur in the concentration of this substance under conditions similar to those which are known to cause them in mammals. If this should be found to be the case an opportunity will be afforded to study certain problems in carbohydrate metabolism which it is difficult to undertake in mammals.

N. B. TAYLOR—

Work on the volume of blood flow through the hands under various physiological conditions is being continued with and an extensive paper has been prepared for publication in *Heart.* Many interesting facts have come to light such as that drafts have a profound effect in changing the blood flow whereas massage has very little influence. A very close relationship between the atmospheric temperature and the blood flow has been demonstrated. This investigation has been assisted financially by the Department of Militia and Defence.

N. B. TAYLOR AND H. M. CAMERON—

In the course of the practical class work it was discovered that Mr. Cameron, a third year student of medicine, exhibits a very unusual phenomenon, namely that he can accelerate the heart beat and raise the blood pressure voluntarily without doing muscular exercise. The phenomenon is being thorougthly investigated by all known methods and for this purpose Mr. Cameron has been temporarily appointed on the staff of the department for part of the summer vacation. This is made possible by aid received from the Research Fund. It is by the investigation of problems of this nature *i.e.* of cases bordering on the pathological, that important facts of clinical value can often be brought to light.

N. B. TAYLOR, J. M. D. OLMSTED, MISS J. LANG AND E. H. CRAIGIE—

An attempt is being made to study the position of the pathways of the spinal cord that transmit various types of impulses between the memory centres of the brain and the lower motor centres of the spinal cord. Encouraging results have been secured in one animal.

MISS H. I. EADIE—

The physical constants and the general reliability of the so-called "confimeter" of Leonard Hill have been determined. The instrument is devised to measure the rate of the cooling influence of the atmosphere, with the hope that the instrument may be useful in studying the problem of ventilation. The research has been assisted by the Department of Militia and Defence and several definite and probably useful results have been obtained. These will be published shortly.

J. M. D. OLMSTED—

The histological changes which occur in taste buds after cutting their nerve supply have been carefully studied with significant and perfectly definite results. The problem is important because is shows the nature of the relationship which exists between a sensory nerve ending and its nerve fibre and in no other case can this relationship be so satisfactorily worked out. A paper embodying many of the results was published during the year.

CHEMISTRY UNDER DIRECTION OF PROFESSOR W. LASH MILLER.

Widespread interest in chemistry due to the war is no doubt responsible for the large number of students engaged in chemical research during the past year; it seems unlikely that this condition will be permanent. Of these research students, two held appointments from the Honorary Advisory Council, thirteen were half-time assistants, and twelve were undergraduates of the fourth year in the honor departments of chemistry or chemistry and mineralogy I. In addition, six undergraduates of the fourth year in the faculty of Applied Science spent about half their time in elementary research work on electrochemical problems. The supervision of the various investigations was divided among the professors of the Department; titles and brief abstracts of the results of twenty-eight of them have been sent to the Royal Society of Canada for publication, fuller accounts of some of them will appear next winter in the chemical journals. In addition, during the year twelve papers were published from the Department, giving detailed results of work completed before the beginning of the academic year; a list of the titles may be found in appendix E,, under the title "publications of members of the staff."

Three graduate students were awarded the degree of Doctor of Philosophy, viz:— Mr. N. A. Clark, with a thesis "The influence of certain chemicals on the rate of reproduction of yeast" (Professor W. Lash Miller); Mr. W. A. Lawrance, "Nitrophthalic anhydrides and acetylamino-phthalic anhydrides with toluene and aluminium chloride." (Professor F. B. Allan); and Mr. M. E. Smith "Carbethoxy-benzoyl chlorides with aluminium chloride and various aromatic hydrocarbons" (Professor F. B. Allan).

Seven obtained the degree of Master of Arts, viz:—Mr. C. S. Gilbert, with a thesis "A study of the extent to which various liquids can be superheated and of the conditions under which superheating is possible" (Professor F. B. Kenrick); Mr. G. Haas, "Solubility of crystal faces" (Professor Kenrick); Mr. W. B. Leaf, "The action of methyl-green on yeast" (Professor. Miller); Mr. T. C. McMullen "The intermediate compounds in the reaction between phthalic anhydride benzene, and aluminium chloride, and their use in the synthesis of mixed phthalides" (Professor Allan); Mr. J. W. Rebbeck "The dissociation pressures of Spencerite, a basic phosphate of zinc" (Professor J. B. Ferguson); Mr. H. N. Stephens, "Bromphthalic anhydrides with benzene and aluminium chloride" (Professor Allan); Mr. G. A. Williams, "The passage of hydrogen and of helium through tubes of silica glass" (Professor Ferguson).

GEOLOGY UNDER DIRECTION OF PROFESSOR A. P. COLEMAN.

Between June 9th and September 18th, 1920, an investigation was made as to the thickness and extent of the Cordilleran Ice Sheet. In the course of the work twenty ascents were made to elevations of 5,000 to 10,000 feet, and it was proved that the ice rarely reached 8,000 feet and was usually much below that level. It was proved, also, that the area covered by the Cordilleran sheet was less than had been assumed hitherto.

While the results obtained threw important new light on the subject, nothing has been published, since it is hoped that much more complete data can be obtained during the coming summer.

PALAEONTOLOGY, UNDER DIRECTION OF PROFESSOR W. A. PARKS.

During the year one of the skeletons obtained by the Research Expedition of 1919 has been prepared and mounted. While the specimen does not represent a new species, it reveals several new points in the anatomy of the head, and for the first time shows the structure of part of the body. An illustrated article on the specimen has been prepared for presentation to the Royal Society of Canada.

Preparation has also been well advanced on one of the skeletons obtained by the expedition of 1920: it certainly represents a new genus and species of dinosaur which will be described next year.

The means of transportation granted from the Research Fund has enabled us to secure much material from the vicinity of Toronto which has resulted in the preparation of a monograph on the Bryozoa and Brachiopoda which will appear in the forthcoming report of the Ontario Department of Mines. The same facility of transportation has resulted in the discovery of an hitherto undescribed exposure of Utica shale on the Rouge river and has furnished material for an article on the Trilobita to be presented to the Royal Society.

A redescription of some of the Conularidae of the Lockport limestone has also been prepared for publication.

MINERALOGY, UNDER DIRECTION OF PROFESSOR T. L. WALKER.

The money available for research in the Department of Mineralogy has enabled the staff to have the assistance of Mr. E. W. Todd as a chemical assistant in mineralogical research, to secure apparatus specially needed and to conduct field work for the month of June in the triassic trap region of Nova Scotia. Thirteen papers containing the principal results of our investigations are contained in an issue of the University Studies entitled "Contributions to Canadian Mineralogy,1921." It is highly desirable that money should be provided to secure part time services of recent graduates who, while providing further relief for the staff for research, might, as graduate students, follow up their studies as candidates for higher degrees.

DEPARTMENT OF MEDICINE, UNDER DIRECTION OF PROFESSOR GRAHAM.

The staff of the Department of Medicine feels that, for the present at least, our main effort must be directed towards the proper training of the large number of students in attendance and the thorough clinical investigation of cases on the wards. With these ends in view, teachers' meetings have been held for the discussion of methods of teaching and the subject matter to be taught, and cases on the wards have been investigated from both the clinical and laboratory standpoint and accurate records of them have been kept. A certain amount of pure research is being carried on, the details of which are given below.

A. During the past year, Dr. A. A. Fletcher has been engaged on a metabolic study of cases of chronic arthritis. Pemberton, investigating cases of arthritis among soldiers of the American Army, found that the tolerance to glucose was frequently lowered in cases of chronic arthritis. Dr. Fletcher has attempted in his investigation to answer the following questions:—

(1) Is the lowering of the sugar tolerance an index of the severity of the disease?

2. Does the degree to which the sugar tolerance is lowered determine the suitability of such cases for dietetic treatment?

During the past 14 months the blood sugar reaction to administration of 100 grams of glucose has been estimated in over 110 cases of chronic arthritis, and in about 70 of these, the results of diet, low in carbohydrates, has been carefully observed. From this work it has been found:—

1. That the sugar tolerance in chronic arthritis shows great variations in different cases, but is remarkably constant in the individual cases, over a long period of time.

2. That the lowering of the sugar tolerance is no indication of the severity of the disease, nor does the tolerance return to normal when convalescence sets in. This is not in agreement with the conclusions of Pemberton in army cases.

3. That most cases of arthritis are favorably influenced by dietetic treatment, and that the degree and probability of benefit varies directly with the lowering of the sugar tolerance. Cases showing blood sugar figures up to 3 mgs. per cc., after 100 grams of glucose, are in our cases always much improved and sometimes cured by such treatment.

4. That female cases of arthritis show as a rule a much lower tolerance than the males, and are more frequently benefited by reduction of diet. This would indicate that in men other factors play a more important part in the production of arthritis, as for example, fatigue, exposure, etc.

5. That there is a close association between infection and sugar metabolism. Further work is indicated on this question.

6. That a simple diabetic diet alone is not suitable unless containing adequate vitamins, especially vitamin "A."

B. Careful clinical and laboratory studies were made last year on the cases of "Flu" treated in the hospital. In conjunction with the department of Pathology and Bacteriology, two important papers have been published on the Aetiology of Influenza:—

1. The Aetiology of Epidemic Influenza: Experiments in search of a Filter-Passing Virus.—H. B. Maitland, Mary L. Cowan and H. K. Detweiler.

2. Spontaneous and Artificial Pulmonary Lesions in Guinea-pigs, Rabbits and Mice.—H. B. Maitland, Mary L. Cowan and H. K. Detweiler.

C. During the past winter all cases of pneumonia have been carefully studied. Their clinical investigation is still in progress. In November Dr. Detweiler began a study on the route of infection in lobar and broncho-pneumonia. Twelve experiments were performed in attempting to throw light upon the possibility of producing experimental pneumonia by infection of the lymphatics of the upper trachea, to the exclusion of other routes. Many difficulties were encountered and the work had to be temporarily discontinued at New Year, owing to the resignation of the skilled laboratory technician and the necessity of taking over his work as well as training a successor. It may be mentioned, however, that ten of the animals showed evidence of lung infection, in a more or less degree. This investigation will be resumed as soon as time permits.

D. Studies in the Wasserman reaction during pregnancy and pneumonia are in progress.

E. During the past two years Dr. W. R. Campbell has been engaged in a clinical and laboratory study of cases with kidney disease. A publication will be made shortly on the practical application of simple methods for the diagnosis and treatment of renal disease.

F. Clinical and laboratory investigations on the following diseases are now in progress:—

(1) Exopthalmic Goitre.
(2) Diabetes Mellitus.
(3) Pneumonia.
(4) Endocarditis.

G. During the "Flu" epidemic in 1920, an attempt was made to study in co-operation with the department of Physiology, the blood flow in the hands of patients suffering from "Flu," especially those showing cyanosis. Owing to the difficulty in using the apparatus then available, Dr. Taylor, of the deparment of Physiology, has devised a new apparatus suitable for use with bed patients, Investigations using the new apparatus will be carried on this year. Financial assistance for this work is being provided by the Special Research Fund.

H. In order to obtain more accurate information of the topographical anatomy of the chest, a combined clinical and X-Ray study of the chest is being made on fifty or more normal adults. This research is being carried on with the assistance of Dr. Richards of the X-Ray department of the Toronto General Hospital. Financial assistance for this work is also being obtained from the Special Research Fund.

Sub-Department of Paediatrics (Dr. Alan Brown).

Several problems are now under investigation in the Nutritional Research Laboratory at the Hospital for Sick Children. Partly because of delay from lack of suitable material, and partly because the work involves much detail, the completion of these problems necessarily requires a considerable period of time. One in particular was begun about a year ago, and there is no prospect that it can be finished before the end of the academic year. These problems are as follows:—

(1) The retention of the fat, nitrogen and the more important salts of the diet by children suffering from chronic intestinal indigestion, and by those who are making a good recovery from the same. Two cases were studied last spring, the food, urine and feces for five and six day periods respectively, being collected and analyzed. Neither represented an extreme stage of the condition; one child being well advanced in recovery, and the other showing considerable improvement. No new case has been available until this spring, when a mild case came under observation. The material for the preliminary period has been collected, and the analyses are under way. It is hoped that material can be obtained later, after a definite recovery has taken place.

(2) Retention of the chief food elements in acrodynia—Two cases have been studied. The analyses for the second case will be completed shortly, and the work will be ready for publication before the end of the academic year. The case in which the work is finished showed nothing out of the normal in the behaviour of fat or the various salts, but showed an abnormally low nitrogen retention. The excessive loss of nitrogen occurred through the urine, though the feces, small in actual amount,contained an unusually high proportion of nitrogen.

(3) The difference between the retention of fat, nitrogen, and salts by children fed dilutions of whole milk, and that by children taking the same dilutions of whole milk powder dried by the hot spraying method, is now under way. The observation should be made on a number of different children, and the completion of the work may be delayed.

Other work has been done during this year as material has come to hand as follows:—

(1) The investigation of the fat content of the stools of an infant suffering from pyloric stenosis, just before and just after operation, to determine the proportions of split and unsplit fat as an indication of the presence or absence of the normal amount of lipase. For controls the same work was done on the stools of two infants of similar age without pyloric stenosis but suffering from diarrhoea. A much larger proportion of unsplit fat was found in the feces of the child with pyloric stenosis, than in either of the other infants. However, the work should be repeated with other cases of pyloric stenosis before any conclusions can be drawn.

2. The fat, nitrogen and salt retention of a girl suffering from epilepsy was studied. She had a good appetite and excellent digestion. She showed very good retention of fat and nitrogen, but rather peculiar salt behaviour. There was a very large retention of calcium, magnesium and phosphoric acid, but rather small of potassium, sodium and chlorine.

3. Nitrogen partition in the urine of marantic infants with mild nose and throat infections. Not enough work has been done yet. Two cases showed high urea on successive days, and two very low. The stools were not collected. It will probably be necessary to collect these in order to distinguish between cases with and those without diarrhoea.

(4) Two cases of diabetes, one an infant, were followed for a long period. Daily determination of total sugar in the urine, and for a considerable part of the time quantitative determination of acetone and diacetic acid were made.

(5) Completion of the work on calcium in the blood in tetany by Dr. R. W. Simpson in collaboration with Dr. Alan Brown.

(6) Determination of organic acids free and combined by Van Slyke's method in as many as possible of the urines of infants and children that have been collected quantitatively for any purpose. It is hoped that some instructive tabulation of results can be made when enough data have been collected.

(7) Investigation of the nature of the unidentified rest in dried feces, sometimes amounting to over 30%, not fat, protein or ash. Samples of feces left from other investigations are used. Determination of organic acids in these samples is being made. Not much time has been spent on this work yet.

The work of the Research Fellows:—

Dr. Gladys Boyd has been carrying on three problems:—

1. Study of nephritis in children from the point of view of the chemistry of the blood and the urine. This work is nearly completed and will soon be ready for publication.

2. Study of sugar tolerance of infants. Not much progress has been made in this.

3. Study of the toxins of burns. This is being done in collaboration with Dr. Bruce Robertson, Department of Surgery. Material is being obtained from animals as well as from cases of burns brought to the hospital, where exsanguination transfusion is used.

Dr. Boyd hopes during the summer to investigate the toxins of summer diarrhoeas along the same lines as that in which the work on burns is being done.

Dr. A. P. Hart has just completed an investigation of the cause of the ammoniacal diaper and his paper is now ready for publication.

Dr. Hart has begun an investigation of the hemoglobin of the blood in rickets, and the change in it as a result of treatment, using the Palmer and Van Slyke methods for the determination of hemoglobin.

Dr. Hart has also collected data from all available cases on sugar tolerance in rickets.

Report of the Committee in Charge of the Fund for Experimental Research.

The Committee have had the sum of $5,000.00 available for the purposes of Research, during the session 1920-1921. The following statement indicates the manner in which the funds have been utilised for the period mentioned and includes, in addition, a report on certain uncompleted investigations which were, in part at least, financed by funds provided prior to June, 1920.

First: *Uncompleted investigations which are still in progress and were financed from funds provided prior to June,* 1920.

(1) EXPERIMENTS ON BASAL METABOLISM

Necessary apparatus was provided and the investigations are still in progress. The results will soon be available for publication. The Research is being conducted by Dr. F. W. Rolph.

(2) RESEARCH ON NIPPLE TOXINS

This recearch was conducted by Dr. Dobbin under the direction of Professor J. J. MacKenzie. The latter obtained the necessary funds for the Research from the Committee.

(3) RESEARCH ON DEMENTIA PRECOX

Dr. C. K. Clarke was provided with funds to the extent of $500.00 which was to be utilized as part of the salary of Miss LeDrew, who was engaged by Dr. Clarke to tabulate statistics. Dr. Clarke reports that while most useful information has been obtained it is too soon to utilise this for publication.

(4) REASEARCH ON INFLAMATION AND REPAIRS IN TENDONS AND FASCIA

Dr. W. E. Gallie and Dr. LeMesurier are carrying on a Research to illustrate the clinical phenomena which present problems for solution in connection with inflammation and repair in tendons and fascia. The results of these investigations will be published immediately.

(5) RESEARCH ON THE CELLULAR ACTIVITY OF TESTES

Dr. W. E. Gallie has obtained permission of the Committee to investigate the cellular activity of the Testes after such procedures as the Bevan operation. The investigation is in progress.

(6) RESEARCH ON ANAEMIA

Dr. N. M. Keith was granted permission to conduct a series of experiments on Anæmia. Shortly after the investigation was begun Dr. Keith was transferred to the Clinic of The Mayo Foundation, Rochester, Minnesota. The investigation will be continued by Dr. Almon Fletcher.

Second: *Investigations financed from funds available after June,* 1920.

(1) RESEARCH ON BURNS

Dr. L. B Robertson was granted permission to study the toxic products contained in the blood of patients the victims of severe burns. Results of value and interest have already been obtained and the Research is still in progress.

(2) RESEARCH ON INFECTION IN THE KIDNEY

Dr. J. C. McClelland was granted permission to study the modes of infecting the Kidney. The investigation is still in progress.

(3) RESEARCH ON THE EFFECT OF X-RAY TREATMENT UPON THE OVARY

Dr. Richards and Dr. Shouldice were granted permission to investigate the effect of x-ray treatment upon the Ovary. This work is in progress.

(4) REASEARCH ON THE ETIOLOGY OF INTUSSUSCEPTION

Dr. D. E. Robertson was granted permission to conduct experiments in order to study the method of production of an intussusception. The work is still in progress.

(5) RESEARCH IN CREATINURIA

On application of Professor Harding, funds were provided for Mr. O. H. Gaebler to conduct a Research on Creatinuria.

(6) RESEARCH IN PSYCHOLOGY

Funds were provided for Dr. Bott for experimental investigations in Psychology.

(7) RESEARCH ON THE NORMAL RELATIONS OF VISCERA

Drs. Detweileer and Jamieson were provided with funds for the purpose of studying the normal relations of the Viscera.

(8) RESEARCH ON PERITONITIS

Dr. Costain was granted permission to conduct an investigation on the etiology and treatment of Peritonitis. The work is in progress.

(9) APPARATUS FOR RESEARCH

Dr. Armour was granted permission to purchase a Microtome of large size for the purpose of cutting sections of the Brain, to be utilized in the study of the anatomy of the Brain.

(10) APPARATUS FOR RESEARCH

Professor Duncan Graham was provided with funds for the purpose of constructing Calorimeter moulds and Sleeves to be used in the study of the rate of the Blood Flow.

THE SCHOOL OF ENGINEERING RESEARCH

The progress of the School of Engineering Research during the past year, has been as great as could reasonably be expected, bearing in mind the load of lecture and laboratory teaching borne by members of the staff.

The publication of Bulletin No. 2, has unavoidably been delayed by the pressure of this latter work. However, the papers embodying the results of the investigations are now in course of preparation and will be shortly in the printer's hands. The bulletin, it is expected, will be ready for circulation during the summer. Following are some of the subjects of investigation which have been completed and with which the bulletin will deal:—

Professor P. Gillespie:

The operation of the Imhoff Sewage Sedimentation Tank in America—The Strength of Gypsum—Slabs doubly Reinforced with Steel—An investigation of the Effect of Certain Variations in Concrete Mixtures Upon the Strength and Other Properties—in collaboration with the American Society for Testing Materials.

Professor C. R. Young:

Investigation of the True Net Section of Rivetted Tension Members.

Professor H. E. T. Haultain and Professor F. C. Dyer:

The Analysis by Photograpy of the Paths of the Balls in a Ball Mill.

Professor F. C. Dyer:

Apparatus for the Quantitative Determination of the Magnetic Contents of Ores.

Professor J. T. King:

Improvements in the Apparatus for Graphite Assay.

Professor J. H. Parkin:

The Toronto Aerodynamic Laboratory.

An Investigation of Various Types of Micromanometers. Studies with a Full Scale 4 ft. N.P.L. Type Wind Channel to Determine the Best Form of Intake to Overcome Disturbances Due to Eccentric Position in the Building, and the Presence of Large Obstructions.

Wing Tip Research—Part 1

The Effect of Plan Form and Variation in Camber.

An Investigation of the Characteristics of the Belliss and Morcom Governor.

Professor J. W. Bain:

Improvements in the Method of Production of Zirconium Oxide from its Ores.

A Study of the effect of Alteration of Conditions in the Distillation of Wood.

Professor M. C. Boswell:

Contributions to the Theory of Solution.

(1) Catalytic Reduction in Acid Solution.

(2) (With H. C. Soehner), Rates of Action of Magnesium upon Solutions of Sulphuric, Hydrochloric, and Acetic Acids of Various Concentrations.

(3) (with H. C. Soehner), Rates of Action of Magnesium upon Solutions of Potassium Chloride, Sodium Nitrate, Potassium Sulphate, Barium Chloride, and Ammonium Chloride, of various Concentrations.

(4) The Solubilities of Magnesium Hydroxide and Calcium Hydroxide in Solutions of Potassium Chloride.

(5) (with R. C. Cantelo). The Vapor Pressures of Sulphuric Acid, Potassium Chloride etc., of Gradually Increasing Concentration.

(6) (with R. C. Cantelo), The Mechanism of the Action of Nickel in Hydrogenation.

The Determination of Magnesium in the Presence of Potassium.

The Production of Oxalic Acid from Wood Waste.

A Method for the Large Scale Production of Absolute Formic Acid.

Professor H. W. Price:

The Effect of Magnetic Leakage on the Flux in the Core, the Magnetizing Current, and Core Losses in Current Transformers.

The Effect of the Position of the Primary Conductor on the Errors through Type Portable Current Transformers.

Determination of Turn-ratio of Current Transformers.

The Effect of Various kinds of Primary and Secondary Shunts on the Characteristics of Current Transformers, and Methods of Applying them to Minimize the Errors of Current Transformers Operating on Fixed Burdens.

Professor G. A. Guess:

The further Investigation of the Conditions in the Electro Refining of Nickel.

The Recovery of Silver from Zinc Retort Residues.

The Determination of the Extent to which the Desulphurization of a Copper Ore may be Carried and Still Enable a Gas to be Manufactured Sufficiently High in Sulphur Dioxide for the Production of Sulphuric Acid—a Problem of the Tennessee Copper Company.

(9) REPORT OF THE LIBRARIAN. (H. H. LANGTON, ESQ., M.A.).

I beg to submit the following report on the Library for the year ending June 30th, 1921.

The number of volumes added to the Library during the year is 7,838; the number of pamphlets added during the year is 1,530; making a total of 168,418 bound volumes and 54,176 pamphlets in the Library.

The statistics of the use of the Library by students, with comparisons of the two previous years, are as follows:

	1918-19	1919-20	1920-21
No. of books taken out during day	26,698	41,128	41,483
No. of books taken out for the night	10,920	16,583	17,321
No. of books taken out for a week	4,360	4,589	4,687
Average number of students in Reading room at any one time	57	77	75

The use of the Library by students has remained almost stationary as compared with the previous year, but this condition is not likely to be more than temporary. Two additional Reading Rooms, formerly occupied by the University Press, have been prepared for use, and, as soon as the Library Staff can be augmented to enable them to be under supervision, they will be opened to the students. Another large room in the basement has been temporarily in the occupation of the graduate students during the latter part of the year.

The increased cost of books and periodicals in all countries necessitates a large increase in the appropriation for the Library, even without considering the demand by all University departments for more extensive purchases. If the University is to maintain its place among the Universities of Canada, especially in the matter of post-graduate work, a much larger appropriation for books and periodicals must be made in the immediate future.

The appointment of Mr. W. Stewart Wallace as Assistant Librarian at the beginning of the year has proved a very important step in improving the efficiency of the Library. The time of the Librarian has been so largely taken up with routine work and the ordinary problems of administration that very little attention could be given to new departures. The Assistant Librarian at the beginning of the year visited several of the more important University Libraries in the United States, studying methods and bringing back with him information as to the experiments being tried in other places for the purpose of making their Libraries more interesting and helpful to undergraduates. Although want of space and funds has prevented these new ideas from being put into practice, for the present at least, they are receiving consideration and attempts will be made to carry out some of them at the earliest opportunity.

(10) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF SOCIAL SERVICE. (PROFESSOR J. A. DALE).

In presenting the report of my first year as Director of the Social Service Department, I have many acknowledgements to make. The University, by its foundation of a chair in Social Science, has given formal recognition of the existence of a body of organized knowledge, at once liberal and applicable to the practice of social service. It is a pleasure to record that two of the most important of recent contributions to social theory have come from my predecessor, R. M. MacIver, who has given the Department, both as Director and teacher, the tradition of sound learning, whose evidence is in his books.

The other essential to a school of social service is practice work. It would not be possible to find satisfactory clinical experience for so large a number of students, except for the generous co-operation of social agencies and their officers; and would not be easy without the existence of a group of organized agencies such as the Neighborhood Workers' Association. Miss McGregor has built up a system of field work which depends chiefly on the supervisors, and partly on the correlation of the practice with the study of case-work. To these supervisors our debt is heavy. At considerable trouble, and for no reward, they take charge of the student's work in their department, and prepare the most careful reports, which are invaluable for record and for guidance in making recommendations for employment. As the Department develops it should definitely retain the services of a certain number of supervisors by arrangement with their agencies, instead of depending (and sometimes, I fear, trespassing) on their kindness. At the same time, it is only fair to add that practically every agency whose help has been sought, has regarded it as a privilege and a duty to give practice facilities with skilled instruction. The employment of trained workers is not only the truest economy for the work's sake, but makes possible that concerted action which gives the best service to the needy and the best practice for the student. This employment of qualified workers at once raises the standard of service and of training, and attracts good students; while the employment of poorly qualified workers in all three ways depresses the standard.

Registration.

The registration of full time students was 61, which exceeded the limit we had set, and crowded our field work. The average age of these students was 27; 35 were between 20 and 30, and 4 below. The total registration was 366, of whom 18 were men. The number examined was 277; first year certificates, 32 (in addition 5 were conditioned); diplomas, 5 (2 more were conditioned). The overwhelming majority came from Ontario—outside Toronto 160, Toronto 151. There were in addition 296 registered in short courses.

Entrance.

The entrance qualification is a matter of some difficulty, and new regulations have been drawn up for next session. Briefly, these set age limits of 21 and 35, and more clearly define the academic requirements. While giving full discretion to accept applicants who can offer evidence of successful social service and sufficient general education, these regulations aim to encourage students who are still of school and college age, to take a college course if possible; if not, to take a shorter university course, with subjects selected for their preparatory value, or at least to take matriculation,—normally, the minimum standard. We are working on a university course, two years preparatory and two in the Department, which we hope will become the normal course of those students who on leaving school desire to take up social training and are unable to take either a degree or a diploma course.

Part time students were admitted to nearly all the lectures: they represented a great variety of occupation. It is evident that the function of providing teaching for citizens of all ranks who wish to make their service to the community more effective, only waits development. There are at present various difficulties; in some classes there is no room; the lectures are usually given in the morning; it is very hard to add to the teaching hours of the staff whose time is not at our disposal and is heavily occupied elsewhere.

Library.

The number of books has been steadily increased owing to the generosity of the McCormick Estate; and the use of the books has notably increased. The privilege of the library is extended to Alumni, social workers, and interested people under guarantee, and so far as the use by students permits. Brief reference must be made to the increasing enquiries for book lists, for guidance in study, or in practical work: a valuable item in our service and though rather a heavy demand on our staff, one very willingly given. It will be necessary next year to extend the library by adding to it the present office of the Field Work Director. There has been also a considerable increase of clerical work, and I wish to make special acknowledgment of the devoted service of Miss Anderson as secretary and librarian. Other thanks are due for the thoughtfulness of those friends, and the class of '21, who have made welcome gifts of books; and for the loan collection of pictures with which Professor Mavor has added charm and interest to our pleasant building. An even greater gift is the enthusiastic loyalty of the Alumni, which gives the Department the most welcome help and encouragement.

Special Courses.

1. A full course for Y. M. C. A. boys' workers, offered in co-operation with the National Boys' Work Board. Part of the work was taken in Victoria College, and the practice work in the Y.M.C.A. The course was in charge of Dr. Hayward, and will lead to a second year next session. The entrance qualifications proved a difficulty here also, and it is expected that a four year course of the type just described, will be officially adopted by the Y. M. C. A., and possibly by other bodies.

2. The Medical Social Course was modified, in order to show the perspective of medical in relation to general social work. Of the 25 lectures, 8 were given by the Director and 2 by Mr. Stapleford, the remainder by experts in various aspects of Public Health Nursing. The course was in charge of Miss Emory, and the work done very satisfactory.

3. A short course was given for the Neighborhood Workers' Association and Big Sister Association combined, on child welfare and family problems—12 lecturers taking the various aspects of which they had special knowledge.

4. The same method was adopted in the short course given by the Canadian National Council for Combating Venereal Disease on the moral, psychological, medical and educational aspects of social hygiene. Both courses were attended by audiences that strained the capacity of the large lecture hall to the limit.

5. The Director gave a course of fifteen lectures to the staff of the Y. M. C. A. Headquarters.

The increased number of classes, owing to the addition of a second year, and the increased size and use of the library has compelled us to restrict the use of the building by other agencies. But we have been able to offer some hospitality to the new Department of Public Health Nursing, which has proved a very natural and pleasant co-operation.

Public Lectures were given by the following visitors:— C. C. Carstens (who was brought to Toronto by the Child Welfare Council); J. H. T. Falk of Montreal, and E. T. Devine of New York. The lectures were appreciated and the audiences were large.

The Director has given a large number of public addresses and done an increasing amount of work for committees, and Miss McGregor has devoted much time and energy to building up, by personal and committee work with the co-operating agencies, the foundation of field work.

Practically every graduate of the Department is employed and many of this year's class leave to take up posts. For the best kind of worker, combining personality, education, experience, and trained ability, there is still more demand than supply. This will be met in course of time from the students who follow the two year Diploma course (especially from those who have good previous education and experience). But it must be realized that for many students it is very hard, or impossible, to spare an extra year; some of those who would most have profited have been compelled to go out and earn. I hope the next chapter of our history will see the foundation of scholarships, or benefaction worthy to succeed that of Mrs. Warren, which made the Department possible, and of the McCormick fund which is endowing it with a library.

(11) REPORT OF THE DIRECTOR OF UNIVERSITY EXTENSION AND PUBLICITY.

(W. J. DUNLOP, ESQ.)

University Publicity.

It is almost impossible to distinguish between publicity and extension work. The extension courses bring the University the very best of publicity, and the publicity work results in increased requests for extension work. Five specific means of publicity have been used:

(a) *Bulletins:—*

The following have been issued and distributed during the year:—

(1) 15,000 copies of an eight-page booklet on extension courses for teachers;

(2) 1,000 copies of a large four-page bulletin on special benefactions;

(3) 4,000 copies of a large four-page bulletin on the work of the antitoxin laboratories, the Department of Social Service, the course in Commerce, and University Extension;

(4) 10,000 copies of an illustrated booklet containing a synopsis of the President's statement to the Royal Commission on University Finances;

(5) 3,500 copies of an eight-page booklet, illustrated, on Special Winter Course, for distribution to U. F. O. Clubs;

(6) 15,000 copies of a sixteen- page Summer Session calendar for teachers;

(7) 3,000 copies of an eight-page pamphlet giving a list of extension lectures;

(8) 1,000 copies of a four-page folder regarding outside classes under the new arrangement approved by the Senate;

(9) 5,000 copies of a sixteen-page booklet, "Opportunities for Graduates in Science," prepared by the staff in Science of the Faculty of Arts;

(10) 5,000 four-page folders regarding the Special Winter Course for farmers and 2,500 four-page folders on the Short Course in Journalism.

(b) *Meetings: addresses—*

In co-operation with the Alumni Association and with the very effective assistance of Professor C. H. C. Wright, local alumni associations were visited, re-organized, and meetings addressed. The principal places visited were:— Stratford, Niagara Falls, Welland, Brantford, Kitchener, Bradford, Ottawa, Hamilton, St. Catharines, Cornwall, Napanee, Belleville, Trenton, Oshawa, Port Hope, Cobourg, Brockville, Pembroke, Smith's Falls, Bowmanvile, Dunnville, Simcoe, Galt, Guelph, Windsor, St. Thomas, Woodstock, Exeter, Harriston, Collingwood, Waterford, Chatham, Sarnia, Windsor, and Elora. Meetings were not possible in all of these places but good publicity work was done in each of them. Addresses were given by Sir Robert Falconer, General Mitchell, Professors Gillespie, McLennan, C. H. C. Wright, G. M. Wrong and I. H. Cameron, Mr C. E. Macdonald, and the Director.

(c) *News Items, Articles, Letters,—*

(1) Through the kindness of Mr. C. Lesslie Wilson, B. A., of the Wilson Publishing Co., an item on the University, its work and its needs, appears every week throughout the year on one of the inside pages of some two hundred country newspapers (printed in part by that firm). This item is supplied by the Director.

(2) Articles and news items have been supplied almost daily during the session to the reporters of the daily newspapers of Toronto.

(3) Articles and letters have been supplied occasionally to the Farmers' Sun.

(4) Almost every week a short news item has been sent to every newspaper in Ontario.

(5) Articles and news items have been supplied also to the University Monthly.

(d) *Advertising,—*

Various lectures, classes, and courses have been advertised in the daily papers with excellent results. The policy has been followed of advertising for any Department of the University any lectures, courses, or special activities, that may be arranged. For example, the conference on Physics, the Household Science special course on "Diet for Health," the special lectures of the Department of Social Service. When all the University's advertising is concentrated in one office, it is possible to secure much more favourable advertising rates.

(e) *Exhibit at Canadian National Exhibitions*—

In March an offer of space was made by the authorities of the Canadian National Exhibition. This offer was gratefully accepted, and arrangements are well under way to put on an exhibit at this year's Exhibition. The space allotted has been divided among the Departments of Physics, Hygiene, Astronomy, Botany, Anatomy, University Extension, and the Faculty of Applied Science.

With the assistance of the Superintendent, parties of visitors have been conducted through the University buildings. The largest of these parties was one composed of one hundred and twenty-five young men and women from the county of Peel; they learned much that was a revelation to them.

The experience of this year has shown that the people of Ontario are anxious to learn more of the activities of the Provincial University which they rightly and naturally regard as their own property.

University Extension.

(a) *Summer Session*:—

The work offered in Arts in the Summer Session of 1920 comprised second year English, French, and Physics; Third year English, French, and Political Economy; Fourth Year English, Geology and Mineralogy. The total attendance in the work of all three years was 41. Now that the Teachers' Course has been definitely organized and various misunderstandings cleared up, a much larger attendance may be anticipated; indeed, the applications in hand on the last day of the University year indicate an increase of more than one hundred per cent in attendance for the Summer Session of 1921.

The subjects offered in the summer course for degrees in Pedagogy were Educational Administration and Educational Psychology. The atttendance was 44, consisting chiefly of public school inspectors, normal school and secondary school teachers, and public school principals. Two students came from the United States, one from Alberta, one from Saskatchewan.

It should be noted that, while attendance of students from other Provinces is encouraged in the courses in Pedagogy because this is the only course of its kind attempted in Canada, the courses in Arts in the Summer Session and Teachers' Classes are restricted exclusively to students in the Province of Ontario.

(b) *Teachers' Classes*:—

For the benefit of teachers who live in Toronto or its vicinity lectures in subjects of the Teachers' Course are offered at 4.30 on certain afternoons and on Saturday forenoons. According to this scheme History, Psychology, and Science of the second year were given; History, French, and Science of the Third year; and History, Psychology, and Political Economy of the Fourth Year. Eleven public school teachers who had done all the work for the B. A. degree in this way graduated this spring. The total attendance at these Teachers' Classes during the session was 76.

In the courses in Pedagogy there are Teachers' Classes also. During the winter session Educational Administration, History of Education, and Educational Psychology were given. The number of students registered in the three subjects was 31.

(c) *Correspondence Courses:—*

While teachers within easy reach of the University are taking their work in Teachers' Classes, others who cannot attend are studying the same subjects by correspondence in preparation for the work of the Summer Session. Of these latter there were thirty-four in the Second Year and thirteen in the Third Year. To them 436 correspondence bulletins were sent and 374 exercises in answer to these bulletins were received from them.

The Extension Office also conducts correspondence courses for teachers in the subjects of the Middle School, the Upper School, and the commercial course. Teachers taking this work numbered 24, 68 and 26 respectively; bulletins sent them were 501, 832 and 356, and exercises received amounted to 161, 211 and 71. While these correspondence courses are intended to assist those who will take summer courses conducted by the Department of Education, it is also to be noted that many teachers taking Upper School subjects are in this way taking also the First Year of the Pass Course and purpose entering on the Second Year of the Teachers' Course in the near future.

(d) *Extension Lectures:—*

Single lectures and courses of lectures have been greatly in demand during this year. Courses, consisting of two or more lectures, have been given by members of the University staff in Petrolia, Hamilton, Ottawa, Tweed, Stratford, Bowmanville, Brampton, Huntsville, Brantford, Bancroft, Guelph, Orangeville, Collingwood and Welland, and single lectures have been given in Woodstock, St. Catharines, Fenwick, Orono, Toronto, Brooklin, Woodbridge, Beaverton, Listowel, Burgessville, Barrie, Watford, and Hillsburg. The total number of lectures was 53. Professors who are asked to deliver these lectures respond very heartily though the trips involve much time and some inconvenience.

(e) *Workers' Educational Association:—*

This voluntary organization of working men and women receives from the University the majority of its tutors and most of its funds. The Toronto W. E. A. conducted seven classes, in the tuition of which six members of the University staff participated and three instructors who do not belong to the staff. The enrolment in these classes was about 160. The Extension Office, with the assistance of members of the University staff, organized a W. E. A. in Hamilton with two classes in Economics. The Hamilton W. E. A. asks for four classes next winter and the members are very grateful for the assistance which the University renders their organization. The Ottawa W. E. A. has asked for three classes and arrangements have been made to comply with this request. The Trades and Labour Council of St. Catharines is considering the organization of a W. E. A.

All of these Workers' Educational Associations are independent each of the others and desire to remain so but all look to the University for support.

(f) *Tutorial Classes*:—

These are evening classes composed of persons who desire to improve their education but who are not looking for a certificate or a degree. Four such classes were conducted in Toronto and one in Streetsville. The latter was attended by young men and women belonging to the Junior Farmers' Institute and the Junior Women's Institute. The Agricultural representative in the County of Peel has asked for four such classes in that County next session.

(g) *Extra-mural Classes*:—

On the recommendation of the Committee on University Extension, the Council of the Faculty of Arts and the Senate approvod a new scheme by which the work now done in the Teachers' Classes may be developed and extended so that persons in any locality in the Province may, under specific conditions, proceed to a degree by means of local evening classes. Already the Central Y. M. C. A. has begun to enrol students for this type of work and enquiries regarding it have come from Boards of Trade and other responsible organizations in Fort William, Hamilton, Sault Ste. Marie, Port Arthur, Stratford and Haileybury.

(h) *Special Winter Course for Farmers*:—

The Executive of the Canadian Weekly Newspapers Association short course of two weeks open to members of their Clubs, and others, and chose as their subjects Economics, Architecture, Public Health and Hygiene, English Literature, and Canadian History. This course was given from February 7th to 19th and was in every respect most successful. The attendance was 279; the enthusiasm of the students was extraordinary; the publicity given the course in the newspapers of the Province was most gratifying. In the type of subjects given this course is the first of its kind offered to farmers by any college or university in Canada. A similar course is offered for next year at the same time.

(i) *Short Course in Journalism*:—

The Executive of the Canadian Weekly Newspapers Association has asked for a week's course similar to that given the U. F. O. and this has been arranged for September 12th to 17th.

(j) The Department of University Extension co-operated with the Department of Household Science in advertising a free course on "Diet for Health," the attendance at which was so great that many people could not be accommodated. Another course on a more permanent basis has been arranged for next year. This office also assisted the Saturday Afternoon Lectures Committee in the season's work.

Everywhere throughout the Province there appears to be a remarkable demand for higher education and the Committee on University Extension is prepared to do everything that can be done to meet this demand. To be prepared to perform, as far as the size of its staff and its finances will permit, any service that any section of the public may require is recognized as part of the duty of the Provincial University.

(12) REPORT OF THE DIRECTOR OF DEPARTMENT OF MILITARY STUDIES.

(COLONEL W. R. LANG).

I have the honour to report on this Department as follows:

1. The number in attendance—students in honour graduating departments and of the pass course—was 45, as compared with 15 in 1919-20, and many wishing to attend have been unable to do so owing to clashes with other subjects. In addition to these students of Military Studies as an Arts option, 47 others took practical work in the O.T.C. as an athletic option. A much increased number of applicants is indicated for next session.

2. In April eight candidates from the senior year took the optional examinations conducted by the War Office for O.T.C. certificates. The papers were those being written on by candidates throughout the Empire.

3. Proposals regarding further development of the courses are not included in this report, as these depend largely on certain changes at present under the consideration of the Medical and Science Faculties.

4. In September accommodation was provided for the department at 184 College Street. This has sufficed for the year's requirements. At my request the Militia Department kindly loaned tables, forms, chairs, maps and other instructional material.

One graduate generously sent a cheque which enabled 48 volumes to be purchased for a departmental library, and other volumes have been presented.

(13) REPORT OF THE PHYSICAL DIRECTOR.

(DR. J. W. BARTON).

(A)

The last year, 1920-1921, was the second year of compulsory physical examination of all students and compulsory physical training for the students of the first and second years. With the exception of a part of the students of the final years in Medicine and Dentistry the examinations were completed and revealed some interesting facts.

First, eighty per cent of our students were in Category "A" physically, that is fit for service anywhere, another ten per cent fit only for certain kinds of service overseas, and another ten per cent fit only for light clerical service in Canada.

Students were placed in Category "C" for the following reasons: asthma, small chest, loose cartilage, deformities, goitre, hernia, injuries, infantile paralysis, light weight, deficient muscular heart, organic heart disease, spinal curvature, round shoulders, and muscular tremor.

Students in Categories "A" and "B" were allowed to choose the form of exercise in which they wished to indulge, but the students in "C" took regular class work in the gymnasium two periods each week. The results of the regular class work upon these students below par are most satisfactory.

For instance, of the students of light weight ninety per cent increased, on the average, six pounds during the session, while the other ten per cent lost, on the average, two pounds each. As the average weight of these students was one hundred and eleven pounds in October, an average gain of six pounds is a good showing.

Likewise the students with "small chests" made a creditable showing, as they all, with but one exception, increased the girth of their chest an average of 1.15 inches. The average size of these small chests (anything below 35 inches expanded) was 33.7 inches. Thus by increasing their girth as above the average size was brought up to 34.8 inches, or very close to the 35 inches.

Similar improvement was noted in cases of round and uneven shoulders and poor posture.

In the rarer conditions there were six cases of goitre, of which one decreased in size, three remained stationary, and two showed an increase.

There were five cases with a history of tuberculosis, of which four showed an increase in weight and one remained the same.

The general result was such that thirty-three per cent improved sufficiently to leave Category "C" and be placed in Category "A" or "B."

The elective work such as boxing, fencing, wrestling, basketball and swimming crowded the five gymnasia and the swimming tank daily from 4 to 6 p.m.

As many as seven hundred students have used this equipment between the hours of 3 to 6 p.m.

The new arrangement of the University whereby provision on the various time tables has been made for morning hours for physical training will be a great boon to the general athletic work.

I believe a word in recognition of the work of our swimming instructor Mr. Winterburn, is due at this time. The actual number taught to swim last year was two hundred and twenty-three. This is a record for our work.

Of those able to swim there were one hundred and fifty-eight awards for Life Saving gained by our students, which I believe is another record. It should be a great source of satisfaction to the University to know that this important work, learning to swim, and learning the art of life saving, is receiving such attention and attaining such results.

Report of the Athletic Association.

In the various branches of athletics the season of 1920-1921 has been a memorable one in the University of Toronto. It is safe to say that in no previous year have so many championships come to the University.

In the Intercollegiate contests the Senior and Intermediate Rugby, the Senior Soccer, Harrier, Basketball, Hockey, the Gymnasium Contest, the Boxing, Fencing and Wrestling championships came to Varsity.

The Senior Rugby Club also played off for the Canadian Championship, represented by the Earl Grey Cup. The Senior Hockey Club won the John Ross Robertson Cup of the Ontario Hockey Association and the Allan Cup of the Canadian Amateur Hockey Association.

In rowing, Coach T. R. Loudon's crew, many of whom had never sat in a boat before turning out for the University, won the Junior and Senior "Eights" at the Canadian Henley Regatta held at St. Catharines on Civic Holiday 1920.

The Interfaculty championships have been won as follows:

Rugby (Mulock Cup)	Victoria
Track (Toronto Cricket Club Cup)	S.P.S.
Soccer (Arts Faculty Cup)	S.P.S.
Harrier (Brotherton Cup)	Meds.
Hockey (Jennings Cup)	Trinity
Basketball (Sifton Cup)	Jr.U. C.

Boxing, Wrestling and Fencing (Davidson Cup)	Dents.
Rowing	S.P.S.
Indoor Baseball (Spalding Cup)	Trinity.
Swimming (Fitzgerald Cup)	S.P.S.
Water Polo	Dents.
Indoor Track	S.P.S.

(14) REPORT OF THE DIRECTOR OF THE CONNAUGHT ANTITOXIN LABORATORIES. (DR. J. G. FITZGERALD).

Research Division:

The work in this Division of the Laboratories has been undertaken with a view of further increasing the knowledge of two subjects of very considerable interest. The first problem is of immediate practical importance and is an endeavour to ascertain the diagnostic and prognostic value of certain serological methods, in tuberculosis, when the results of these serological investigations are correlated with radiological, clinical and other observations. Repeated examinations of this character have been made and already most interesting results have been obtained. Dr. Caulfeild and his associates, Dr. Hodge, Miss Cohen, Miss McLennan, Miss McMillan and Mrs. La Rush have devoted their attention to the various aspects of this work. An interesting bacteriological study in connection with this problem has also been conducted by Dr. Hodge and Miss Cohen.

The study of Dr. Caulfeild and those associated with him, has been carried to the point where publication of results will soon be undertaken and a monograph on the subject will, it is expected, be prepared. This very fine combined laboratory and clinical investigation is the result of the co-operation of the Connaught Antitoxin Laboratories with the Department of Soldiers' Civil Re-establishment, originally undertaken to provide laboratory facilities of the very best type for the ex-service men of the C. E. F. suffering from pulmonary disease. This combined effort is being sustained and is under Dr. Caulfeild's direction.

The other work undertaken by Dr. Cruikshank in these laboratories for the D. S. C. R. was discontinued when Dr. Cruikshank resigned to become Director of the Division of Laboratories of the Department of Public Health, Toronto. This work was of routine character, chiefly, and could well be carried on in the health diagnostic laboratories in Toronto and elsewhere.

The second problem at present being investigated in these laboratories is that of toxin production by bacteria. This is also a subject of much scientific interest. It has not hitherto, been approached, however, from a stand-point which to us, it has seemed, might yield significant results. The work at present is engaging the attention of Mr. Moloney and Miss Hanna and already substantial progress has been made. It is anticipated, however, that this study may require to be prosecuted for perhaps several years, before any of the more obscure features can be elucidated. Other problems, the investigation of which has been initiated by members of the Department but temporarily put aside on account of the pressure of routine work, will it is expected be further investigated during the coming academic year. The research work of members of the Departments of Hygiene and Preventive Medicine, as well as that of the members of the Research Division of the Connaught Antitoxin Laboratories is conducted in the latter because of the unusual facilities there provided.

Antitoxin Division:

The work of this Division under the immediate direction of Dr. R. D. Defries, Associate Director of the Laboratories, has expanded very greatly during the present year.

The demand for certain of the public health biological products, especially diphtheria antitoxin and smallpox vaccine has exceeded that of any previous year since the establishment of the Laboratories. The communities served have also increased in number and extent in 1920-1921,

As hitherto, all of the diphtheria antitoxin, smallpox vaccine and other products distributed free in Ontario, by the Provincial Board of Health of this Province. and in Saskatchewan by the Bureau of Public Health of that Province, have been obtained from these Laboratories. The Provinces of Alberta, Manitoba, New Brunswick. Nova Scotia and Prince Edward Island have also been supplied in large part. In addition the Cities of Edmonton, Calgary, Saskatoon, Winnipeg, Lethbridge, etc., have obtained antitoxin from the Connaught Antitoxin Laboratories. Druggists in the Provinces of British Columbia, Quebec, Manitoba, Nova Scotia and Prince Edward Island have also been supplied. The Colony of Newfoundland has obtained large quantities of different products during the year.

Other parts of the British Empire, notably, New Zealand, British West Indies and British Honduras have also obtained sera on various occasions during the present year. For the first time, products have been shipped to a City in the United States during the last six months, for use in the local health department there. China, too, is now included in the list of countries to which antitoxin has been sent during 1920-1921.

The Laboratories and University Farm were visited during the year by an Officer of the United States Public Health Service and inspected in accordance with the terms of the license held by the laboratories, and issued by the Treasury Department of the United States permitting the Connaught Antitoxin Laboratories to engage in interstate commerce in the United States public health biological products.

An approximate idea of the growth of a part of the routine work will be seen by reference to the following table indicating the output of diphtheria antitoxin for the years 1916, 1917, 1918, 1919, 1920 and 1921.

Year	Diphtheria Antitoxin Units	Diphtheria Plasma Concentrated Litres.
1916	218,626,000	
1917	304,576,000	1,425
1918	275,015,000	1,718
1919	375,215,000	2,263
1920	432,236,000	2.331
1921	496,912,000	3.847

The quantity of smallpox vaccine distributed in 1920 was 535,580 capillary tubes.

The increase in production of diphtheria antitoxin during the year has amounted to seventy per cent. over 1919-1920.

The products at present being prepared and distributed are:—diphtheria and tetanus antitoxin, anti-meningitis serum, type 1, anti-pneumococcus serum, normal horse serum, smallpox vaccine, anti-rabies vaccine (Pasteur Treatment) and anti-typhoid vaccine.

The Connaught Antitoxin Laboratories Research Fund, has been definitely recognized as a trust fund during the current year and the income on this is available for the support of research in preventive medicine, in addition to grants from other sources.

From the surplus on operating of the Antitoxin Division of the Connaught Antitoxin Laboratories for 1920-1921, a sum of money has been set aside for the purpose of promoting health education among students in various faculties in the University for a two year period. To do this a special Lecturer in Health Education (Dr. George D. Porter) has been appointed. He will direct and supervise a thorough investigation into the health conditions existing among incoming male students and will also deliver courses of lectures on elementary personal and public hygiene to students in the different faculties. This health educational work will probably be extended to include work under the auspices of the Department of University Extension.

It is hoped that as a result of this investigation and demonstration that the creation of a Department of University Health Service may be undertaken. The promotion of sound health habits should be the first result of this effort. Even more important, however, would be the creation of a sound public opinion, among undergraduates of the University, on questions relating to public health and hygiene. Later, they in turn can do much to stimulate interest in their own communities, in problems of hygiene and sanitation which may require solution. Until the public generally is educated further in hygiene and sanitation, improvements in the general health are likely to be retarded. It is especially important therefore, that a proper knowledge be inculcated into those who in many instances are destined to take leading parts in the affairs of this Dominion.

The loyal and enthusiastic co-operation of all members of both Divisions of these laboratories is gratefully acknowledged.

(15) REPORT OF THE DEPARTMENT OF PUBLIC HEALTH NURSING.

(MISS E. KATHLEEN RUSSELL).

I beg to submit the following report from this Department for the year ending June 30, 1921.

When the Department of Public Health Nursing issued its first announcement in July, 1920, considerable interest was manifested by the nurses in Ontario and elsewhere, and we were able to select a full class of 50 students, from a list of about 80 applicants. Of this class of fifty, 47 received Diplomas.

The curriculum has presented problems which only experience will solve. We have a certain type of worker to prepare, namely the Public Health Nurse, but that is a rather general term which to different Public Health administrators suggest various forms of service. We are asked to give these students in a one year course, the training and general viewpoint which will enable each to adapt herself later to any branch of this work. It is only possible to attempt this for women who are already graduate nurses.

It has been comparatively easy to obtain the lecture courses desired for this class. The University has a rich store from which to draw. That fact seems to justify the establishment of this new Department in the University.

The health organizations of the City of Toronto constitute the laboratory in which these students must receive their practical training. The difficulties of planning and controlling such work are evident, but, nevertheless, we felt that satisfactory results were obtained. We are deeply indebted to the public health organizations of the city for that training freely given to our students.

The Red Cross Society has generously met the entire cost of the year's work, and we have the promise of their financial assistance for two more years, so that the University may have time to make plans for the future support of the Department.

It is already evident that we are preparing a type of worker that is really wanted in the community, for we are receiving many demands for the services of these first graduates. These enquiries are coming from all over Canada.

(16) STATEMENT REGARDING THE BIOLOGICAL MUSEUM.

(PROFESSOR B. A. BENSLEY)

The following donations have been received for the Biological Museum and for the Royal Ontario Museum of Zoology:—

A collection of shells from Mr. J. J. Freeborn, Dundas, Ontario.

Specimens of antelope horns, presented by Mrs. Davids, Toronto.

A collection of 133 mounted birds, property of the late Dr. T. H. Thornton, Consecon, Ont.; presented by Dr. F. B. Thornton, Toronto, and Mrs I. H. Woods, Petrolea.

A grey seal from Mrs. Turry, Toronto.

A young whistling swan from Mr. G. L. Vivian, Toronto.

An American bittern from Mr. Ernest Purvey, Toronto.

Specimens of pheasants, young peafowl and weasel, presented by Mr. G. H. Corsan, University of Toronto.

A flying squirrel from Mr. J. T. Burnham, Toronto.

A large number of specimens, chiefly birds, including a male ostrich, presented by the City of Toronto Parks Departments.

The following specimens have been received as loans:—

A passenger pigeon from Mr. Paul Hahn, Toronto.

A collection of mounted birds and mammal trophies from Dr. H. H. Moorhouse, Toronto.

There has been received by purchase at a nominal figure the extensive collection of insects belonging to Dr. C. J. S. Bethune, late of Ontario Agricultural College, Guelph.

(17) STATEMENT REGARDING THE MUSEUM OF GEOLOGY. (Professor A. P. COLEMAN).

Besides the acquisition of material as listed below there is nothing worthy of especial mention except the installation of a new wall-case. Professor Parks spent three weeks of the summer of 1920 on a collecting trip to the iron and copper regions of Michigan.

The chief acquisitions during the year are as follows:—

By Donation:

Lava, sulphur, Pele's hair from Mt. Kilauea, Hawaii.—W. Covert, Esq., Toronto.

Sphalerite from Joplin, Missouri.—Professor Guess.

Copper Ores from Japan.—Kenzo Ikeda, Japan, per Dr. W. G. Miller.

Post-glacial volcanic ash, Minto, Yukon.—Professor Walker.

Nigerian tin.—G. T. Halloway, Esq., London.

Calcite concretionary on roots, France.—A. L. Benness, Esq., Swansea.

Semi-anthracite, Alberta.—Mr. Reeve, per Professor MacLean.

Calcite, apatite and mica.—Mrs. R. Galley, Toronto.

Travertine, Moore Park ravine.—Mr. Arthur Jennings, Toronto.

Large series of nickel and copper products,—Mond Nickel Company.

Series of asbestos products.—Consolidated Asbestos Company, Montreal, per Professor Walker.

By Purchase:

Samarskite, North Carolina; Quartz sphere, Japan.—Dr. W. F. Ferrier.

By Collection:

Complete series of copper ores and related rocks, Keweenaw Point, Michigan. —Professor Parks.

Complete series of ores, rocks, etc, of the Marquette Iron Range, Michigan —Professor Parks.

(18) STATEMENT REGARDING THE MUSEUM OF PALAEONTOLOGY. (PROFESSOR W. A. PARKS).

During the winter the head and part of the trunk and limbs of a very fine specimen of *Centrosaurus apertus* have been prepared and mounted in the gallery. Much of the work of preparation has also been done on the head and skeleton of a remarkable new genus and species of dinosaur obtained by the "Research" expedition of 1920.

During the summer and autumn of 1920 very large collections of local fossils were made and much material obtained by donation and purchase has been added to the gallery.

By Donation:

The chief acquisitions during the year are as follows:—

Tertiary fossils from Peru.—J. V. Culbert, Esq.

Type fossils from Idaho, Wyoming, and Utah.—Dr. W. F. Ferrier,Toronto.

Mastodon bone, Florida.—Mrs. C. E. Humberstone, Toronto.

Fossil corals, Lake of the Woods.—A. K. Shives, Esq., per Professor Thomson.

Carboniferous fossils, Nova Scotia.—A. K. Shives, Esq., per Professor Thomson.

Trenton Bryozoa, Montreal.—Professor Thomson.

Megalomus canadensis, Galt, Ontario.—J. Capling, Esq.

Actinoceras sp.—Mr. Wallbridge.

Fossils from France.—A. L. Benness, Esq., Swansea.

Fossils from the Triassic of Peace river.—A. H. Bell, B.A.

Fossils from the Devonian of Great Slave lake.—P. S. Warren, B.A.

By Collection :

Local fossils, Toronto.—Professor Parks and assistants.

Dinosaur remains, Red Deer river, Alberta.—Professor Parks.

Fossils from British Columbia.—Professor Coleman.

By Purchase :

Type specimen of Lissoprion ferrieri.—Dr. W. F. Ferrier, Toronto.

Palaeozoic invertebrates.—Ward's Natural Science Establishment, Rochester, N. Y.

(19) STATEMENT REGARDING THE MINERALOGICAL MUSEUM.

(PROFESSOR T. L. WALKER).

During the year the collections of the University and of the Royal Ontario Museum of Mineralogy have been materially enriched by numerous donations and exchanges as well as by the personal field work of the staff.

The outstanding presentation is due to the generosity of Hon. Senator M.J. O'Brien, Renfrew, Ontario, who gave one of the rich specimens from the Miller Lake-O'Brien mine of Gowganda, Ontario, showing a vein twenty-two inches wide richly impregnated with silver in the smaltite gangue. This specimen now occupies a case in a prominent position where all visitors may gather an idea of the character of the ore in the Gowganda district.

A valuable collection of Brazilian minerals was presented by the Geological Survey of Brazil.

An unusually fine collection of Swedish minerals was received in exchange from the Riksmuseets Mineralogiska Afdelning, Stockholm. In this collection are exceptionally fine samples of some of the rarer Swedish minerals.

Several gaps in the systematic collection were filled by an exchange with the British Museum.

With a view to furthering exchange it has for several years been the policy of the Museum, as opportunity offered, to secure large quantities of typical Canadian minerals, principally through the efforts of the members of the University and Museum staff. As a result of this policy many minerals which were not represented in the collection have been obtained in exchange and for completeness the collection compares favorably with the prominent museums not only on this continent but in Europe.

APPENDIX B

(1) Enrolment in the Colleges.
(2) Enrolment in University subjects.
(3) Registration in Courses in the Faculty of Arts.
(4) Registration for Graduate Courses.

(1) Enrolment in the Colleges.

The students in University College were enrolled as follows:

——	Greek.	Latin.	Ancient History.	English.	German.	French.	Orientals.	Ethics.
First Year—								
Pass	15	305	128	369	78	298	108	....
Honours	10	21	33	96	20	85	....	....
Second Year:								
Pass	9	38	....	235	9	162	79	....
Honours	7	6	39	53	8	41	4	....
Third Year—								
Pass	3	7	3	115	8	64	38	46
Honours	10	11	8	38	2	26	1	....
Fourth Year—								
Pass	....	10	11	91	15	51	36	36
Honours	5	4	5	30	7	15	....	....
Totals—								
Pass	27	360	142	810	110	575	261	82..
Honours	32	42	85	217	37	167	5	....

The students in Victoria College were enrolled as follows:

	Greek.	Latin.	Ancient History.	English.	German.	French.	Orientals.	Ethics.
First Year:—								
Pass	6	95	29	87	10	83	14	....
Honours	3	5	21	56	17	42	....	5
Second Year—								
Pass	2	23	....	86	5	65	7	....
Honours	5	11	15	31	12	21	3	2
Third Year—								
Pass	1	1	2	50	8	14	2	33
Honours	4	1	1	12	3	8	....	4
Fourth Year—								
Pass	1	3	8	59	6	21	2	20
Honours	3	3	3	12	5	6	1	4
Totals—								
Pass	10	122	39	282	29	183	25	53
Honours	15	20	40	111	37	77	4	15

The students in Trinity College were enrolled as follows:

	Greek.	Latin.	Ancient History.	English.	German.	French.	Orientals.	Ethics.
First Year—								
Pass...........	1	30	3	29	3	26	1	....
Honours........	6	7	6	8	1	4	....	....
Second Year.—								
Pass...........	3	21	....	27	1	19	2	....
Honours........	3	3	....	6	3	4	....	....
Third Year:—								
Pass...........	1	2	....	14	....	10	1	13
Honours........	2	1	1	4	2	3	....	4
Fourth Year—								
Pass...........	....	2	2	8	3	3	1	5
Honours........	3	3	3	2	....	3	....	....
Totals—								
Pass...........	5	55	5	78	7	58	5	18
Honours........	14	14	10	20	6	14	....	4

The students in St. Michael's College were enrolled as follows:

	Greek.	Latin.	Ancient History.	English.	German.	French.	Orientals.	Ethics.
First Year—								
Pass...........	4	69	7	78	7	66	....	....
Honours........	3	3	7	15	4	14	....	....
Second Year—								
Pass...........	....	25	....	48	2	27	25	....
Honours........	1	1	1	6	1	6	6	6
Third Year—								
Pass...........	....	5	....	30	1	19	7	20
Honours........	....	1	....	3	2	3	8	8
Fourth Year—								
Pass...........	1	1	....	19	....	11	14	18
Honours........	1	1	1	3	....	4	....	....
Totals—								
Pass...........	5	100	7	175	10	123	46	38
Honours........	5	6	9	27	7	27	14	14

(2) ENROLMENT IN UNIVERSITY SUBJECTS.

The following tables exhibit the numbers attending lectures in University subjects, together with the number of those taking the practical work in the laboratories:—

DEPARTMENT OF MATHEMATICS

	Pass.	Pass and Honours.	Honours.
Faculty of Arts—			
First Year	592		71
Second Year	22		139
Third Year	2		45
Fourth Year			15
Faculty of Medicine—			
First Year	17		
Second Year	9		
Faculty of Applied Science—			
First Year		191	
Second Year		316	
Total	642	507	207

DEPARTMENT OF PHYSICS

	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	459		76	76
Second Year	12		81	71
Third Year	5		23	28
Fourth Year	1		22	10
Graduate Students			9	9
Faculty of Medicine—				
First Year		208		208
Second Year		14		14
Faculty of Forestry—				
First Year	19			19
Faculty of Household Science—				
First Year				12
Ontario Veterinary College Students	25			25
Total	533	222	211	472

DEPARTMENT OF BIOLOGY

	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	403		87	87
Second Year	30		52	82
Third Year	12		21	33
Fourth Year			7	7
Teachers' Class	34			34
Graduate Students				4
Faculty of Medicine—				
First Year		208		208
Second Year		326		326
Faculty of Applied Science—				
First Year				
Second Year				
Faculty of Forestry—				
First Year			17	17
Fourth Year			6	6
Total	479	534	190	804

DEPARTMENT OF BOTANY

——	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	450		65	65
Second Year	24		29	53
Third Year	4		5	9
Fourth Year	5		3	8
Graduate Students			15	15
Faculty of Applied Science		32		32
Faculty of Forestry—				
First Year		19		19
Fourth Year		6		6
Ontario Veterinary College—				
First Year		25		25
Second Year		32		32
Total	483	114	117	264

DEPARTMENT OF CHEMISTRY

	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	385	....	91	91
Second Year	23	....	79	102
Third Year	17	....	15	15
Fourth Year	3	....	18	16
Graduate Students	....	....	20	15
Faculty of Medicine—				
First Year	....	213	....	213
Second Year	....	135	....	135
Faculty of Applied Science—				
First Year	....	....	....	31
Second Year	....	76	....	76
Third Year	....	81	....	81
Fourth Year	....	9	....	9
Faculty of Forestry—				
First Year	18	....	....	18
Second Year	16	....	....	....
Ontario Veterinary College Students	25	....	....	25
Total	487	514	223	827

DEPARTMENT OF PHYSIOLOGY

——	Pass.	Honours.	Laboratory.
Faculty of Arts—			
Third Year	2	14	16
Fourth Year	11	11	11
Graduate Students	1	....	1
Faculty of Medicine—			
Second Year	16	....	16
Third Year	178	....	178
Ontario Veterinary College Students	10	....	10
Total	377	25	377

DEPARTMENT OF BIOCHEMISTRY

	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—			
Third Year	18	28	14
Fourth Year	....	13	11
Graduate Students	....	6	6
Faculty of Medicine—			
Second Year	197	....	197
Graduate Students	....	5	....
Ontario Veterinary College Students	32	....	32
Total	247	52	260

DEPARTMENT OF GEOLOGY

——	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	425	....	51	....
Second Year	23	....	14	14
Third Year	9	....	7	14
Fourth Year	2	....	3	4
Graduate Students	....	....	4	4
Third Year, Summer Session	12	....	....	12
Faculty of Applied Science—				
First Year	....	12	....	12
Second Year	....	24	....	....
Third Year	....	45	....	14
Fourth Year	....	49	....	12
Faculty of Forestry—				
Second Year	....	14	....	....
Third Year	....	12	....	12
Total	471	156	79	98

DEPARTMENT OF MINERALOGY

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
Second Year	25	....	27	52
Third Year	....	....	16	8
Fourth Year	2	....	12	14
Summer Session	11	....	....	11
Graduate Students	....	....	....	3
Faculty of Applied Science—				
First Year	....	45	....	45
Second Year	....	83	....	83
Third Year	....	16	....	16
Fourth Year	....	12	....	12
Faculty of Forestry—				
Second Year	....	16	....	16
Total	38	172	55	260

DEPARTMENT OF PHILOSOPHY

		History of Philosophy and Metaphysics		Logic		Ethics.	
		Pass.	Honours.	Pass.	Honours.	Pass.	Ponours.
First Year	......	......	......	......	......	......	7
Second Year	......	......	27	85	25	......	7
Third Year	......	51	10	......	9	62	6
Fourth Year	......	35	1	......	1	37	1
Graduate Students	22	......	......	......	......	......	......
Total	22	86	38	85	35	99	21

DEPARTMENT OF POLITICAL SCIENCE

——	Pass.	Honours.
Faculty of Arts—		
Department of Political Science—		
First Year		16
Second Year	120	52
Third Year	61	46
Fourth Year	101	34
Graduate Students		13
Department of Commerce and Finance—		
First Year		27
Second Year		14
Third Year		10
Fourth Year		3
Department of Modern History—		
Second Year		3
Third Year		8
Fourth Year		10
Department of Philosophy—		
Third Year	18	
Department of Household Science—		
Fourth Year	22	
Department of Social Service—		
First Year	58	
Department of English and History—		
Second Year	27	
Faculty of Applied Science—		
Second Year	316	
Faculty of Medicine—		
Second Year	70	
Department of Commerce—(New Commerce Course)—		
First Year		21
Occasional Students	2	8
Totals	795	265

DEPARTMENT OF HISTORY

——	Pass.	Honours.
First Year	10	60
Second Year	90	100
Third Year	70	75
Fourth Year	81	57
Total	292	251

DEPARTMENT OF ITALIAN AND SPANISH

—	Italian.		Spanish.	
	Pass.	Honours.	Pass.	Honours.
First Year	9	7	142	79
Second Year	17	2	48	42
Third Year	2	....	13	11
Fourth Year	....	2	4	5
Graduate Students	....	1	....	2
Total	38	12	207	139

DEPARTMENT OF HOUSEHOLD SCIENCE

—	Pass. Course.	Household Science Course.	Total.
Faculty of Arts—			
First Year	....	13	13
Second Year	....	21	21
Third Year	7	19	26
Fourth Year	10	26	36
Graduate Students	....	....	2
Department of Public Health Nursing—			
Regular	....	....	50
Occasional	....	....	2
Ontario College of Education—			
Household Science Course	....	....	14
Summer Session	....	....	83
	17	79	247

(3) REGISTRATION IN COURSES IN THE FACULTY OF ARTS, 1920-1921.

Courses	First Year				Second Year				Third Year				Fourth Year				Totals
	U. C.	V. C.	T. C.	M. C.	U. C.	V. C.	T. C.	M. C.	U. C.	V. C.	T. C.	M. C.	U. C.	V. C.	T. C.	M. C.	
Pass	290	89	29	66	121	48	27	28	64	22	11	23	59	37	6	17	937
Household Science (G. C.)													12	6	1	1	20
Classics		2	4	1	2	2	2	1	8	1	1	1	3	2	3	1	34
Greek and Hebrew					1												1
Orientals					3	3								1			7
Orientals (Greek)									1								1
French, Greek and Latin	1	1	1														3
Moderns	38	22	1	6	30	16	2	5	18	6	2	3	13	6	1	5	174
English and History (Cl.)									3	3	2		1	1			10
English and History (Mod.)									9	3	1	1	8	1			23
English and History	19	7	3	6	8	9	3	1									56
Modern History	2		1	1	1	1		1	3	4			6	3	1		24
Political Science	21				35	13	3	1	29	13	3		18	15			151
Commerce and Finance	22	12	1		12	3			8	2			3				63
Philosophy					4	2		7	2	4	4	8	1	2			34
Philosophy, English and History	4	3		1	11	8	3										30
Mathematics and Physics	11	9			15	9			10	4	1		16	3			78
Natural and Physical Science	32	19	3	1													55
Physics													1				1
Biology					4				4				1	2			11
Physiology and Biochemistry														1			1
Biological and Physical Science										1			3	1			5
Physiological and Biochemical Science									11	3			5	1			20
Biological and Medical Science					13	7	2	1	1								24
Chemistry and Mineralogy					6	1			4	2			4	3			20
Chemistry					15	1		1	4	2	2		9	2			36
Geology and Mineralogy														1			1
Household Science					2	1				2			2		2		9
Household Economics	3	8			9	9			9	8			1				47
Science for Teachers					1	3			1	1			1				7
Arts and Forestry	1												1				2
Commerce	16	6	1	2													25
Total of Courses	460	178	44	84	293	136	42	46	189	81	27	36	168	88	14	24	1,910
Total of students	457	178	44	84	293	136	42	46	189	81	27	36	168	88	14	24	1,907

(4) REGISTRATION FOR GRADUATE COURSES.

Faculty of Arts:

		M.A.	Ph.D.	Graduate
Department of	Astronomy	2	....	....
“	Biochemistry	2	....	....
“	Biology		3	....
“	Botany	4	7	1
“	Chemistry	8	6	1
“	Classics	6	....	....
“	Educational Theory	16	....	....
“	English	12	....	4
“	Food Chemistry	2	....	....
“	Geology and Palæontology	1	1	1
“	German		....	1
“	History	8	....	1
“	Household Science	1	....	1
“	Mathematics	1	1	....
“	Mineralogy	1	....	....
“	Oriental Languages	2	1	1
“	Pathological Chemistry		1	....
“	Philosophy	14	3	7
“	Physics	5	5	1
“	Physiology	4	....	....
“	Political Science	3	4	5
“	Romance Languages	7	1	1
“	Zymology	2		....
Miscellaneous			1	....
		101	34	25

Faculty of Medicine:

	M.D.
	3
	3

?

APPENDIX C

RESULTS OF EXAMINATIONS.

(1) Faculty of Arts
(2) Faculty of Medicine.
(3) Faculty of Applied Science and Engineering.
(4) Faculty of Forestry.
(5) Faculty of Education.
(6) Faculty of Music.

(1) FACULTY OF ARTS.

Senior Marticulation

Courses	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Starred	Failed.	Transferred	Aegrotat.	Deferred.	Debarred.
Pass	....	67	32	11	30	140	33	38	69	....	....	....	34
Supplementals	....	....	1	....	1	2	1	1	....	....	....	....	....
Moderns	....	2	....	....	....	2	1	1	....	....	....	....	....
English and History	....	1	....	....	....	1	1	....	....	1	....	....	....
Political Science	....	1	....	....	....	1	....	1	....	1	....	....	....
Phil., English and History	....	1	1	....	....	2	1	1	....	1	....	....	1
Commerce and Finance	....	1	3	....	....	4	2	2	....	2	....	....	1
Mathematics and Physics	....	....	2	....	....	2	....	1	1	1	....	....	1
Natural and Physical Sciences	....	5	2	....	....	7	3	4	....	4	....	1	2
Household Economics	....	....	2	....	....	2	2	....	....	....	....	....	....
Commerce	....	....	1	....	....	1	....	....	1	....	....	....	....
Totals	....	78	44	11	31	164	44	49	71	10	....	1	39

First Year

Courses	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals.	Passed.	Starred.	Failed.	Transferred.	Aegrotat.	Deferred.	Debarred.
Pass	....	184	46	17	42	289	96	102	91	....	4	....	23
Supplementals	....	39	21	10	8	78	25	....	53	....	....	....	....
Classics	....	....	2	4	1	7	5	2	....	1	....	....	....
Moderns	....	33	20	1	5	59	50	9	....	13	2	1	1
English and History	....	18	6	4	5	33	29	4	....	7	1	....	1
Modern History	....	2	....	....	....	2	2	....	....	....	....	....	....
Political Science	....	18	....	....	....	18	11	7	....	11	....	....	1
Phil., English and History	....	5	3	....	....	8	6	2	....	2	....	....	....
Commerce and Finance	....	17	7	2	....	26	17	8	1	8	....	....	2
Mathematics and Physics	....	11	8	1	....	20	17	3	....	4	1	1	2
Natural and Physical Science	..	26	12	2	1	41	33	7	1	8	....	....	....
Household Economics	....	4	6	....	....	10	8	2	....	....	....	....	....
Commerce	....	16	5	1	2	24	3	9	12	....	1	....	....
Occasional	....	10	2	....	5	17	6	7	4	....	....	....	....
Totals	....	483	138	42	69	632	308	162	162	54	9	2	30

Second Year

Courses	University of Toronto.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals.	Passed.	Starred.	Failed.	Transferred.	Aegrotat.	Deferred.	Debarred.
Pass	....	115	47	26	29	217	126	57	34	....	4	....	14
Supplementals	....	22	13	2	4	41	23	18	....	....	....	....	....
Classics	....	2	2	2	1	7	6	1	....	....	....	1	1
Greek and Hebrew	....	1	....	....	....	1	1	....	....	....	....	....	....
Orientals	....	2	3	....	....	5	5	....	....	....	....	....	....
Orientals, (Greek)	....	1	....	....	....	1	....	1	....	....	....	....	....
Moderns	....	31	14	2	5	52	38	14	....	2	2	2	3
English and History	....	9	9	2	1	21	19	1	1	....	....	....	....
Modern History	....	1	1	....	1	3	2	1	....	....	....	....	1
Political Science	....	33	13	4	1	51	31	18	2	11	....	....	7
Commerce and Finance	....	13	3	....	....	16	9	4	3	4	....	....	1
Philosophy	....	4	2	1	7	14	11	3	....	....	2	....	....
Phil., English and History	....	12	7	1	....	20	18	1	1	....	....	1	....
Mathematics and Physics	....	16	9	....	....	25	17	7	1	7	....	2	2
Biology	....	4	....	....	....	4	2	2	....	1	....	....	1
Biological and Medical Science	....	12	7	2	1	22	20	1	1	....	....	....	....
Chemistry and Mineralogy	....	6	1	....	....	7	5	2	....	....	....	....	....
Chemistry	....	13	1	....	1	15	8	5	2	1	1	1	....
Household Science	....	2	3	....	....	5	4	1	....	1	....	....	....
Household Economics	....	9	6	....	....	15	14	1	....	....	....	....	1
Science for Teachers	....	1	3	....	....	4	4	....	....	....	....	....	....
Occasional	16	1	....	....	....	17	9	....	8	....	....	....	....
Teachers'	42	....	....	....	....	42	38	4	....	....	....	....	....
Totals	58	310	144	42	51	605	410	142	53	27	9	7	31

Third Year

Courses	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals.	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	....	56	21	8	19	104	81	16	7	..	....	....	5
Supplementals	....	16	2	....	3	21	18	3	....	..	....	....	....
Classics	....	7	1	1	....	9	9	....	....	..	....	....	....
Orientals (Greek Option)	....	1	....	....	....	1	1	....	....	..	....	....	....
Moderns	....	16	5	1	4	26	25	1	....	..	2	....	....
English and History (Cl)	....	4	2	1	....	7	7	....	....	..	....	....	....
English and History (Mods)	....	10	2	1	1	14	14	....	....	..	....	....	....
Modern History	....	3	4	....	....	7	6	1	....	..	....	....	....
Political Science	....	30	12	3	....	45	41	4	....	..	1	2	3
Commerce and Finance	....	8	2	....	....	10	7	3	....	..	....	....	....
Philosophy	....	2	4	4	8	18	15	2	1	..	....	....	....
Mathematics and Physics	....	9	5	1	....	15	12	3	....	..	....	....	....
Biology	....	3	....	....	....	3	3	....	....	..	....	....	....
Physiology and Biochemistry	....	2	2	....	....	4	4	....	....	..	....	....	....
Physiol and Biochem Science	....	9	1	....	....	10	9	1	....	..	....	1	1
Biological and Medical Science	....	1	1	....	....	2	2	....	....	..	....	....	....
Chemistry and Mineralogy I	....	2	....	....	....	2	2	....	....	..	....	....	....
Chemistry and Mineralogy II	....	2	2	....	....	4	2	2	....	..	....	1	1
Chemistry	....	3	2	3	....	8	5	1	2	..	....	....	....
Household Science	....	....	1	....	....	1	1	....	....	..	....	....	....
Household Economics	....	7	10	....	....	17	12	5	....	..	....	1	1
Science for Teachers	....	1	1	....	....	2	2	....	....	..	....	....	....
Occasionals	....	2	....	....	1	3	1	1	1	..	....	....	....
Teachers'	12	....	....	....	....	12	12	....	....	..	1	....	....
Totals	12	194	80	23	36	345	291	43	11	..	4	5	11

Fourth Year

Courses	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals.	Passed.	Granted standing on Active Service	Starred	Failed	Aegrotat	Debarred.	Pass Degree
Pass	....	56	38	7	19	120	91	8	16	5	4	..	..
Supplementals	....	4	1	....	....	5	3	....	1	1	....	..	..
Household Science (G. C)	....	13	6	1	1	21	20	....	....	1	....	..	..
Classics	....	3	4	4	1	12	10	2	....	....	....	..	1
Orientals	....	....	1	....	....	1	1	....	....	....	....	..	..
Moderns	....	15	6	2	4	27	27	....	....	....	1	..	..
English and History (Cl)	....	1	2	....	....	3	1	2	....	....	....	..	..
English and History (Mods)	....	7	2	....	....	9	9	....	....	....	....	..	..
Modern History	....	7	3	1	....	11	11	....	....	....	....	..	..
Political Science	....	21	14	....	....	35	31	3	1	....	1	..	..
Commerce and Finance	....	4	1	....	....	5	3	2	....	....	....	..	..
Philosophy	....	3	2	2	....	7	2	5	....	....	....	..	..
Mathematics and Physics I	....	12	....	....	....	12	9	3	....	....	....	..	..
Mathematics and Physics II	....	7	1	....	....	8	8	....	....	....	....	..	..
Mathematics and Physics III	....	1	....	....	....	1	1	....	....	....	....	..	..
Physics	....	1	....	....	....	1	1	....	....	....	....	..	..
Biology	....	2	2	....	....	4	3	1	....	....	....	..	..
Physiology and Biochemistry	....	1	1	....	....	2	2	....	....	....	....	..	..
Biological and Physical Sciences	....	3	1	....	....	4	4	....	....	....	....	..	..
Physiological and Biochemical. Sciences	....	5	1	....	....	6	6	1	....	....	....	..	..
Chemistry and Mineralogy I	....	4	2	....	....	6	6	....	....	....	....	..	..
Chemistry and Mineralogy II	....	....	1	....	....	1	1	....	....	....	....	..	..
Chemistry	....	9	2	....	....	11	11	....	....	....	....	..	..
Geology and Mineralogy	....	....	1	....	....	1	1	....	....	....	....	..	..
Household Science	....	1	....	1	....	2	2	....	....	....	....	..	..
Household Economics	....	2	....	1	....	3	3	....	....	....	....	..	..
Science for Teachers	....	1	....	....	....	1	1	....	....	....	....	..	..
Arts and Forestry	....	1	....	....	....	1	....	....	....	....	....	..	..
Occasional	....	....	....	1	....	1	1	....	....	....	....	..	..
Teachers'	16	....	....	....	....	16	15	....	1	....	....	..	..
Totals	16	184	91	20	25	336	282	27	19	7	6	..	1

(2) FACULTY OF MEDICINE

——	Passed	Starred	Failed
First Year (Six Years' Course)	116	42	37
Second Year (Six Years' Course)	91	31	6
Second Year (Five Years' Course)	149	27	17
Third Year (Five Years' Course)	152	72	8
Fourth Year (Five Years' Course	136	29	4
Fifth Year (Five Years' Course)	118	9	4

(3) FACULTY ON APPLIED SCIENCE AND ENGINEERING

—	Passed with Honours.	Passed	Starred	Failed
First Year:				
General	45	80	45	17
Chemical Engineering	7	24	17	...
Architecture	1	6	2	1
Second Year:				
Civil Engineering	6	45	23	6
Mining Engineering	...	9	5	1
Mechanical Engineering	15	39	21	2
Architecture	...	9	5	1
Chemical Engineering	15	40	13	9
Electrical Engineering	27	57	29	4
Metallurgical Engineering	2	6	3	2
Third Year:				
Civil Engineering	13	18	7	...
Mining Engineering	2	12	7	...
Mechanical Engineering	5	20	9	7
Architecture	2	1	...	...
Chemical Engineering	13	23	12	2
Electrical Engineering	12	26	9	2
Metallurgical Engineering	1	2	2	...
Fourth Year:				
Civil Engineering	18	19	3	...
Mining Engineering	3	7	6	...
Mechanical Engineering	7	18	4	...
Architecture	6	3	...	...
Analytical and Applied Chemistry	6	8	...	...
Chemical Engineering	3	7	1	...
Electrical Engineering	8	15	2	...
Metallurgical Engineering	1	2	...	...

(4) FACULTY OF FORESTRY.

——	Passed.	Honours. Deferred.	Failed.
First Year	6	7	7
Second Year	1	10	6
Third Year	7	3	....
Fourth Year	5	....	....
Fifth Year	....	....	....
Sixth Year	1	....	....
Special Student	....	....	1

(5) FACULTY OF EDUCATION.

——	Passed.	Failed.
*High School Assistants' Course	72	....
Specialists' Course	47	....
First Class Public School Course	31	....
Elementary Art Course	24	....
Elementary Physical Culture Course	46	....
One Year Household Science Course	15	....
Bachelor of Pedagogy Course	4	....
Bachelor of Pedagogy Course (passed in part)	7	....
Doctor of Pedagogy Course (passed in part)	38	....
Number who failed in whole or part	....	25

(6) FACULTY OF MUSIC.

——	Passed.	Starred.	Failed.
Bachelor of Music:			
First Year	6	1	....
Second Year	1	....	1
Third Year	....	3	....
	7	4	1
Local Examinations	553	....	60

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* Many of these are included among those who passed or failed in the other courses in this list.

APPENDIX D

GEOGRAPHICAL DISTRIBUTION OF STUDENTS

The geographical distribution of students is as follows:—

FACULTY OF ARTS

	University of Toronto	University College.	Victoria College.	Trinity College.	St. Michael's College.	Total
Ontario: (1) Province	34	559	310	93	104	1,100
(1) Toronto	106	535	144	26	94	904
Nova Scotia	5	3	1	....	1	10
New Brunswick	1	5	1	....	....	7
Prince Edward Island	2	2	....	1	....	5
Quebec	1	4	4	....	....	9
Manibota	10	3	4	1	....	18
Saskatchewan	9	17	22	1	....	49
Alberta	3	9	6	2	....	20
British Columbia	2	10	5	3	....	20
United States	12	7	4	1	2	26
Elsewhere	4	16	12	1	6	36
Duplicate registrations	....	....	....	....	....	11
Totals	189	1,170	510	129	206	2,193

SUMMARY

——	Faulty of Arts	Graduate Studies	Faculty of Medicine	Faculty of Applied Science	Faculty of Education	Faculty of Forestry.	Faculty of Music	Department of Social Service.	Department of Public Health Nursing	Totals.
Ontario:										
(1) Province	1,100	57	624	431	123	24	5	160	69	2,593
(2) Toronto	904	78	363	326	72	20	10	151	50	1,974
Nova Scotia	10	2	7	1	1	......	......	11	1	33
New Brunswick	7	1	2	......	......	2	......	5	3	20
Prince Edward Is.	5	......	1	......	......	......	......	2	....	8
Quebec	9	......	7	6	1	2	......	4	1	30
Manitoba	18	2	7	4	......	2	......	3	....	36
Saskatchewan	49	3	28	10	12	......	1	7	....	110
Alberta	20	3	13	8	12	1	......	3	....	60
British Columbia	20	5	40	9	4	2	......	3	1	84
Yukon	......	......	2	......	......	......	......	......	....	2
United States	26	8	10	3	11	1	2	6	1	68
Elsewhere	36	4	23	8	2	1	......	11	....	85
Duplicates	......	......	......	......	1	......	......	......	....	31
Totals	2,204	163	1,127	806	226	55	18	366	126	5,060

The students from the Province of Ontario are distributed as follows:—

County	Faculty of Arts	Graduate Studies	Faculty of Medicine.	Faculty of Applied. Science.	Faculty of Education.	Faculty of Forestry.	Faculty of Music.	Department Social Service.	Department of Public Health Nursing	Totals
Algoma	11	1	8	4	1	1	1	2	11	40
Brant	38	2	21	18	3	1	......	1	2	86
Bruce	25	2	20	11	4	1	......	6	3	72
Carleton	57	3	15	11	3	6	......	4	5	104
Dufferin	6	......	10	4	1	......	......	1	1	23
Dundas	8	2	2	3	......	1	......	2	......	18
Durham	13	......	9	6	2	......	......	7	2	39
Elgin	20	1	15	13	3	......	......	4	1	57
Essex	31	......	22	10	2	......	......	1	......	65
Frontenac	2	1	3	......	2	......	......	1	......	9
Glengarry	2	1	......	......	3	......	......	1	......	7
Grenville	3	......	2	4	......	......	......	1	1	11
Grey	31	1	21	12	2	......	......	3	......	70
Haldimand	9	......	12	6	3	......	......	......	......	30
Halton	19	3	17	8	2	......	1	5	1	56
Hastings	18	1	13	4	......	......	......	7	......	43
Huron	49	1	17	12	1	1	......	1	......	82
Kenora	1	......	3	......	......	......	......	......	......	4
Kent	27	......	18	6	2	......	......	......	1	54
Lambton	31	......	20	10	2	1	......	2	......	66
Lanark	17	2	7	6	6	......	......	......	......	38
Leeds	22	2	9	1	2	1	......	3	1	41
Lennox and Addington	11	1	5	......	1	......	......	4	......	22
Lincoln	31	3	16	7	......	......	......	4	1	62
Manitoulin	1	......	1	......	1	......	......	......	......	3
Middlesex	29	4	11	24	13	1	1	2	2	87
Muskoka	7	......	1	5	......	1	1	1	......	16
Nipissing	5	......	9	5	1	......	......	4	2	26
Norfolk	10	......	7	8	3	......	......	......	......	28
Northumberland	18	1	8	4	2	......	......	2	......	35
Ontario	41	5	21	15	5	......	......	4	......	91
Oxford	22	1	10	8	2	......	......	3	3	49
Parry Sound	7	......	6	2	1	......	......	4	......	20
Peel	20	1	14	10	1	1	......	4	......	51
Perth	43	......	31	15	5	1	......	5	1	101
Peterborough	43	......	8	5	4	......	......	8	......	68
Prescott	1	......	......	......	3	......	......	2	4	10
Prince Edward	3	......	4	1	3	......	......	2	1	14
Rainy River	1	......	......	......	......	......	......	......	......	1
Renfrew	18	......	2	2	1	......	......	......	......	23
Russell	2	......	1	......	......	......	......	......	......	3
Simcoe	60	2	48	25	5	1		15	3	159
Stormont	5	......	1	1	2	......	......	......	1	10
Sudbury	9	......	3	2	1	......	......	......	......	14
Thunder Bay	9	......	......	4	......	......	......	......	......	13
Temiskaming	2	......	......	4	1	......	......	1	......	8
Victoria	18	3	12	12	3	......	......	5	......	53
Waterloo	24	......	15	26	2	1	......	8	1	77
Welland	26	......	27	14	1	......	......	2	1	71
Wellington	60	4	29	9	1	1	......	9	3	116
Wentworth	70	5	36	29	12	1	1	7	4	165
York	64	4	34	45	5	3	......	12	4	171
Toronto	897	78	363	326	72	20	10	151	69	1,986
Totals	1,995	135	987	757	195	44	15	311	119	4,558

APPENDIX E.

Publications by Members of the Staff.

Faculty of Arts.

Department of Archæology.

Harcum, Miss C. G.—“Roman Cooking Utensils in the Royal Ontario Museum of Archæology.” (American Journal of Archæology, Vol. XXV, No. 1, January-March, 1921.)

Department of Biology.

Clemens, W. A., with Clemens, Lucy S.—“Contribution to the Biology of the Muttonfish, Zoarces anguillaris.” (Contributions to Canadian Biology, Ottawa (69).

Huntsman, A. G.—“Age-determination, growth and symmetry in the test of the Ascidian, *Chelyosoma.*” (Transactions Royal Canadian Institute, Vol. XIII.)

“ The standardization of the names of fishes and other marine products.” (Canadian Fisherman, Vol. VII.)

“ International Investigation of the ocean.” (Canadian Fisherman, Vol. VII.)

Leim, A. H.—“A new species of Spirontocaris with notes on other species from the Atlantic Coast.” (Transactions Royal Canadian Institute, Vol. XIII.)

MacArthur, J. W.—“Changes in Acid and Alkali Tolerance with Age in Planarians. With a Note on Catalase Content.” (American Journal of Physiology, Vol. 54; pp. 138-145. Nov. 1920.)

Walker, E. M.—“Wohlfahrtia Vigil (Walker) as a Human Parasite.” (Journal of Parasitology, Vol. VII, pp. 1-7, 1920, (pl. I)

“ The Life Cycle of the Orthopteroid Orders. (Part 2 of a Symposium on the Life Cycle in Insects)” (Annals Entomological Society of America, Vol. XIII, No. 2, 1920, pp. 137-141.)

“ Orthoptera Collected in the Canadian Arctic.” (Rept. of the Can. Arctic Expedition, 1913-18, Vol. III, Insects, Part J: Orthoptera, 1920, pp. 3J-4J.)

Department of Botany.

Baker, Miss L. V.—“Vestigial Centripetal Xylem and Transfusion Tissue in the Leaf of Pinus Strobus. 19 Text Figures.” (Transactions of the Royal Society of Canada. Vol. XIV.)

Brown, H. P.—“Report of the Fertilizing Value of Activated Sludge.” (Annual Report of the Provincial Board of Health for Ontario, 1920.)

Faull, J. H.—“Additional Notes on the Needle Blight of the White Pine.” (Report of Minister of Lands and Forests, of the Province of Ontario, 1920.)

“ Winter Browning of Coniferous Foliage in 1920.” (Report of Minister of Lands and Forests, of the Province of Ontario, 1920.)

“ Some Diseases of Pulpwood Trees of the Temagami Forest Reserve—including preliminary notes on (a) “Red Branch” of Balsam; (b) A Twig Blight of Balsam; (c) Canker of Poplar.” (Report of Minister of Lands and Forests, of the Province of Ontario, 1920.)

"Plant Pathology; its Status and its Outlook." (Transactions of the Royal Society of Canada. Vol. XIV, 1921.)

Sifton, H. B.—"The Seeds of Poisonous Weeds in Concentrated Feeds." (Canadian Veterinary Record, November, 1920.)

"Some Characters of Xylem Tissue in Cycads." (Botanical Gazette, December, 1920.)

"Canadian Plants Injurious in Hay and Coarse Feeds." (Canadian Veterinary Record, March, 1921.)

"Longevity of the Seeds of Cereals, Clovers and Timothy." (American Journal of Botany, June, 1920.)

Department of English.

Horning, L. E., with Jones, G. M. and Morrow, J. D.—"A High School English Grammar."

Bush, Douglas—"A Note on Beowulf 1600-1605." (Modern Language Notes April, 1921.)

"On Hobbies." (Canadian Forum, March, 1921.)

"Celebrities in Transit." (Canadian Forum, April, 1921.)

"Review of Knut Hamsun's Hunger." (Canadian Forum, April, 1921.)

Department of French.

Squair, John—"The New Fraser and Squair Complete French Grammar." (Revision of 1901 edition.) Exercises to Part I by A. Coleman, University of Chicago. (D. C. Heath & Co., Boston.)

"John Seath and the School System of Ontario." (University Press.)

"Statism and Individualism." (Canada First League, January, 1920.)

"David Willson of Sharon 1778-1866." (Transaction No. 20. The Women's Canadian Historical Society.)

Department of History.

Flenley, R.—"Outline of the History of British Artillery to 1815." (Reprint of articles from Journal of Royal Artillery, 1920-21.)

Kennedy, W. P. M.—"Nationalism and Self Determination." (Canadian Historical Review, March, 1921.)

"The Nature of Canadian Federalism." (Canadian Historical Review, May, 1921.)

Williams, R. Hodder—"The Literature of the Peace Conference." (Canadian Historical Review, June, 1921.)

Department of Italian and Spanish.

Goggio, E.—"Relazioni Letterarie fra Italia e Stati Uniti." (Il Carroccio. Vol. XIII, No. 2. August, 1920.)

"Margaret Fuller Ossoli and the Roman Republic." (Il Carroccio. Vol. XIII, No. 1. January, 1921.)

"American Sympathy for Italy's Wars of Independence." (Il Carroccio. Vol. XIII, No. 4. April, 1921.)

Pijoan, J.—"Antique Marbles in the Collection of the Hispanic Society of America, New York."

Department of Mathematics.

Fields, J. C.—"Universities Research and Brain Waste." (Transactions Royal Canadian Institute, Vol. XIII, Part 1.)

Department of Mineralogy.

Walker, T. L.—"Cosalite from Ontario." (University Studies.)
"Dyscrasite from Cobalt, Ontario." (University Studies.)
"Epsomite Lakes near Ashcroft, B.C." (University Studies.)
"Orthoclase from Penticton, B.C." (University Studies.)
"Ulexite from the Maritime Provinces." (University Studies.)
"A Chemical Study of Conglomerates." (University Studies.)

Walker, T. L. with Parsons, A. L.—"Rammelsbergite from Cobalt, Ontario." (University Studies.)
"The Dehydration of Spencerite." (University Studies.)

Walker, T. L. with Thomson, E.—"An Examination of Lillianite and Galenobismutite." (University Studies.)

Parsons, A. L.—"Calcite from Shangoinah Island near Thunder Cape, Lake Superior." (University Studies.)
"Economic Deposits in Thunder Bay District." (Ontario Department of Mines, Vol. XXX., 1921.)

Parsons, A. L. with Thomson, E.—"Animikite and Macfarlanite from Silver Islet, Thunder Bay, Lake Superior." (University Studies.)

Thomson, E.—"A Mineralographic Study of the Pyrite Group." (University Studies.)
"District between Hawk Junction and Wanda on the A.C.R." (Summary Report C.G.S. 1921.)

Todd, E. W.—"Notes on the Analysis of Lead-Bismuth Minerals." (University Studies.)

Gledhill, T. L.—"Iridosmine Crystals from Ruby Creek, Atlin, B.C." (University Studies.)

Department of Philosophy.

Bott, E. A.—"A Point of View." (University of Toronto Studies.)
"Juvenile Employment in Relation to Public Schools and Industries in Toronto." (University of Toronto Studies.)

De Wulf, M.—"L'Œuvre d'Art et la Beauté."

Tracy, F.—"The Psychology of Adolescence." (The Macmillan Company, New York.)

Department of Political Economy.

Jackman, W. T.—"Report on Rural Credits in Ontario." (Ontario Department of Agriculture. 1920.)
"Rural Credit Legislation in Canada." (Bulletin of Economic and Social Intelligence. International Institute of Agriculture, Rome.)
"The Railway Problem in Canada." (Railway Review, May, 1921.)

Jackson, G.—"The Survey of Unemployment in Canada." (Transactions of the International Association of Public Employment Services, 1920.)
"The Medical Profession and the Future." (Transactions of the Ontario Medical Association, 1921.)

Department of Physics.

Burton, E. F.—"Physical Properties of Colloidal Solutions." (Second Edition (Revised), Longmans and Co.)
"Cataphoresis." (Section in the Fourth Report of the Committee of the

British Association for the Advancement of Science on Colloid Chemistry and its General and Industrial Applications.) In collaboration with Miss E. Bishop:—"Coagulation of Colloidal Solutions by Electrolysis." (Journal of Physical Chemistry, Vol. 24, December, 1920, pp. 701-715.)

McLennan, J. C.—"Note on Vacuum Grating Spectroscopy." (Proceedings Royal Society of America, Vol. 98, 1920.)

McLennan, J. C., Young, J. F. T., and Ireton, H. J. C.—"Arc Spectra in Vacuo and Spark Spectra in Helium of Various Elements." (Proceedings of the Royal Society of America, Vol. 98, 1920.)

McLennan, J. C. and Lewis, A. C.—"Spark Spectra of Various Elements in Helium in the Extreme Ultraviolet." (Proceedings of the Royal Society of America, Vol. 98, 1920.)

McLennan, J. C. and Shaver, W. W.—"On the Permeability of Thin Fabrics and Films to Hydrogen and Helium." (Philosophical Magazine, Vol. XL, September, 1920.)

Williams, A. L. with Introduction by Prof. J. C. McLennan—"On the Electrical Conductivity of Copper Fused with Mica." (Philosophical Magazine, Vol. XL, September, 1920.)

McLennan, J. C. and Evans, E.—"On the Mobilities of Ions in Helium at High Pressure." (Transactions Royal Society of Canada, Section III, 1920.)

McLennan, J. C. and Zumstein, R. V.—"On the Absorption and Series Spectra of Lead." (Transactions Royal Society of Canada, Section III, 1920.)

Satterly, J.—"The Pendulum, Simple Harmonic Motion, The Elastic Moduli and Impact—A Laboratory Experiment." (Transactions Royal Society Canada, Vol. XIV.)

" The Practical Study of a Catenary." (Transactions Royal Society of Canada, Vol. XIV.)

" Sir Norman Lockyer, K.C.B., F.R.S." (Journal Royal Astronomical Society of Canada, Vol. XV, 1921.)

" Units in Astronomy." (Journal Royal Astronomical Society of Canada, Vol. XV, 1921.)

Department of Physiology.

Macleod, J. J. R.—"The concentration of lactic acid in the blood in anoxemia and shock." (American Journal of Physiology, Vol. 55, No. 2, March, 1921.)

" Periodic breathing and the effects of oxygen administration in decerebrate cats." (American Journal of Physiology, Vol. 55, No. 2.)

" The Sugar of the Blood." (Physiological Reviews, Vol. 1, p. 208, April, 1921.)

" Physiology and Biochemistry in Modern Medicine." (3rd. edition, C. V. Mosby Co., St. Louis.)

Macleod, J. J. R., Fraser, Mrs. L. M. and Lang, R. S.—"Some observations on the effects of anoxemia on the respiratory center in decerebrate animals." (American Journal of Physiology, Vol. 55, No. 2, March, 1921.)

Macleod, J. J. R., Taylor, N. B., and Self, A. R.—"Effects of hot and cold applications on the superficial and deep temperatures." (The Lancet, 1920, Part II, p. 615.)

Macleod, J. J. R. and Taylor, N. B.—"Temperature Changes in Tissues." (The Lancet.)

Olmsted, J. M. D.—"Effects of cutting the lingual nerve of the dog." (Journal Comparative Neurology, June 15, 1921.) "The results of cutting the seventh cranial nerve in amiurus nebulosus (Lesueur)." (Journal of Experimental Zoology, Vol. 31, No. 4, Nov. 1920, pp. 369-401.)

Taylor, N. B.—"Observations upon the spread of heat through animal Tissues." (Proceedings American Physiological Society, Dec. 1920, vide American Journal of Physiology.)

Faculty of Medicine.

Department of Gynæcology and Obstetrics.

McComb, R. A.—"Prostatectomy." (Canadian Medical Monthly, July, 1920.)

Marlow, F. W.—"Pelvic inflammation." (Canadian Medical Monthly, 1920.)

" Rupture of the Gall Bladder." (Canadian Medical Monthly, 1920.)

" Review of the Forces." (Ontario Medical Association, May, 1920.)

Department of Hygiene.

FitzGerald, J. G.—"An Outline of the Practice of Preventive Medicine." (C. V. Mosby and Company, St. Louis, Mo.)

" An Analysis of Diphtheria Deaths in Ontario." (Public Health Journal, Vol. XI, No. 11, Nov. 1920, pp. 485-502.)

Caulfeild, A. H. W.—"Bacillus Perfringens: Toxin and Antitoxin Production." (The Journal of Infectious Diseases, Vol. 27, No. 2, Aug. 1920, pp. 151-164.)

" Sensitization in Bronchial Asthma and Hay Fever." (The Journal of the American Medical Association, Apl. 16, 1921, Vol. 76, pp. 1071-1078.)

" Symposium on Tuberculosis."—"The Scope of a Central Clinic for Chronic Pulmonary Diseases Working in Correlation with Research Laboratories." (Academy of Medicine, Toronto, Nov. 1919. The Canadian Medical Monthly.)

" Additional Methods in the Diagnosis of Intraocular Tuberculosis." (American Review of Tuberculosis, Vol. 3, 1921.)

" A Comparison between the Interpretation of the Findings in Chronic Pulmonary Lesions by Clinical and Stereorœntenographic Examination." (The Journal of the Canadian Medical Association.)

" A Note on the desensitization of guinea-pigs." (Proceedings of the Society for Experimental Biology and Medicine, 1915, pp. 171-173.)

Moloney, P. J.—"A Hydrogen Electrode." (Journal of Physical Chemistry.)

Moloney, P. J. and Hanna, L.—"Contribution to the Study of Diphtheria Toxin I." (Proceedings Society Experimental Biology and Medicine.)

Hodge, W. R. and Cohen, C.—"Investigation of Streptococci in Bronchial Asthma and Chronic Bronchitis."

Department of Medicine.

Boyd, Miss G. L.—"Nephritis in Children, a Clinical, Functional and Pathological Study." (Canadian Medical Journal.)

Brown, A.—"Malnutrition in Public School Children in Toronto." (Canadian Medical Association Journal.)

"Blood Transfusion in Children, its Indications, Scope and Analysis of 600 cases." In collaboration with Dr. L. B. Robertson, dept. of Surgery.)

"Acrodynia, a Clinical and Metabolism Study." In collaboration with A. M. Courtney, dept. of Pediatrics.)

Courtney, Miss A. M.—"Acrodynia: a Clinical and Metabolic Study." In collaboration with Dr. A. Brown and Miss I. F. MacLachlan. (Canadian Medical Association Journal.)

Dixon, H. A.—"Diphtheritic Ulceration of the Skin." (Canadian Medical Association Journal, February, 1921.)

Elliott, J. H.—"The Development of the Campaign against Tuberculosis." (Journal of the Outdoor Life, Vol. XVII, No. 3, December, 1920.)

"Inaugural Address of the President. Academy of Medicine, Toronto, October 5th, 1920." (The Canada Lancet, Vol. 54, No. 2, October, 1920.

"Pregnancy and Tuberculosis." (The American Review of Tuberculosis, Vol. LV, No. 10, December, 1920.)

"Case Report, Gun shot wound of Chest in a case of Tubercle of the Lung treated by Pneumothorax." (Transactions, American Climatological and Clinical Association, 1920.)

"Pulmonary Complications following Tonsillectomy." (Academy of Medicine, Toronto, April 11th, 1921.)

Jamieson, R. A.—"Auricular Tibullation." (Univ. of Toronto Medical Bulletin, March, 1921.)

Lougheed, G. W., and Dr. Leonard Murray—"A series of Cases of Subacute Bacterial Endocarditis of Aortic Valves." (The Canadian Medical Journal.)

MacLachlan, Miss I. F.—"Cod-Liver Oil just as Effective as Cod-Liver Oil and Phosphorus in the Cure of Rickets and Tetany." In collaboration with Dr. Alan Brown and Dr. Roy Simpson. (Canadian Medical Association Journal.)

"Acrodynia: a Clinical and Metabolic Study." In collaboration with Dr. Alan Brown and Miss A. M. Courtney. (Canadian Medical Association Journal.)

McVicar, C. S.—"Medical Reconstruction." (Nelson's Loose Leaf Medicine, Vol. VII.)

Ogden, W. E.—"Need and Correlation of Sanatoria near Toronto for non-tuberculous Pulmonary Diseases." (The Canadian Medical Monthly, July, 1920.)

"Prognosis and Diagnosis in Tuberculosis as aided by Serology." (Canadian Medical Association Journal.)

Rae, C. A.—"The question of Dosages in the prevention and treatment of Diphtheria." (The Canadian Journal of Medicine and Surgery, June, 1921.)

Smith, D. K.—"Observations From the Dermatological Clinic of the Department of Soldiers' Civil Re-Establishment of Canada, Toronto Branch."

"Oriental Sore—Report of Four Cases."

Strathy, G. S.—"A Further Study of Liver Atrophy by X-Ray Examination." (Canadian Medical Association Journal, Dec. 1920.)

"Further Experience on Estimating the Effects of Military Service on Insurance Risks." (Proceedings of the Association of Insurance Medical Directors, 1920.)

Department of Ophthalmology.

Burnham, G. H.—"Blows upon the Eyeball in the Region of the Ciliary Processes—their Medico-Legal aspect." (American Journal of Ophthalmology, November, 1920.)

"Clinical Remarks upon some Varieties of Glancoma, especially with reference to Pragnosis and Treatment." (American Journal of Ophthalmology. May, 1921.)

Department of Oto-Laryngology.

Goldsmith, P. G.—"A Consideration of the Pathology and Treatment of Otosclerosis." (Otological Section of New York Academy of Medicine.)

"Headaches of Nose, Throat, and Ear Origin." (Academy of Medicine, Buffalo.)

"The Pathology and Treatment of Chronic Catarrhal Deafness." (Ontario Medical Association, Niagara Falls.)

"Introduction to the discussion on the End Results of Nasal Accessory Sinus Surgery." (Middle Section of the American Laryngologicol, Rhinological and Otological Society, Chicago.)

"A Consideration of the Anatomy of the Faucial Tonsils and their Surgical Removal." (Niagara District Medical Meeting, Welland.)

"Abstracts of Otolaryngological Literature." (Journal of Laryngology and Otology.)

Department of Pathology and Bacteriology.

Maitland, H. B., Cowan, Miss M. L. and Detweiler, H.K.—"The Aetiology of Epidemic Influenza: Experiments in Search of a Filter-Passing Virus." (British Journal of Experimental Pathology, 1920. Vol. I. p. 263.)

"Spontaneous and Artificial Pulmonary Lesions in Guinea-Pigs, Rabbits and Mice." (British Journal of Experimental Pathology, 1921, Vol. II, p. 8.)

Maitland, H. B., and Cameron, G. C.—"The Aetiology of Epidemic Influenza: A Critical Review." (The Canadian Medical Association Journal, June, 1921.)

Department of Radiology.

Richards, G. E.—"The Diagnosis of Gastric Ulcer." (The Canadian Medical Association, January, 1921.)

"Recent Developments in the use of X-Rays in Gynæcology."

"Some Problems in Deep Therapy with Case Reports using a Twelve Inch Spark Gap."

In collaboration with G. H. Bingham:

"Co-Relation of Results of Treatment by Surgical and X-Ray Methods." (The Canadian Medical Association Journal, November, 1920.)

Department of Surgery.

Gallie, W. E. and LeMesurier, A. B.—"The Use of Living Sutures in Operative Surgery." (The Canadian Medical Association Journal, 1921.)

Harris, R. I.—"A Memorandum on the Measurement of Movements of Joints."

"An Operation for the Relief of Median Anæsthesia."

"The Treatment of Irreparable Nerve Injuries."

Department of Therapeutics.

Rudolf, R. D.—"The Therapeutic Use of Oxygen." (American Journal of the Medical Sciences, July 1920. and Medical Press and Circular, London, July 28th, 1920.)

" The Medical Treatment of Disease." (Textbook published by the University of Toronto Press, January, 1921.)

" The Treatment of Anæmia by Drugs." (The Canadian Medical Association Journal, June, 1921.)

" The Normal Point on the Clinical Thermometer."

FACULTY OF APPLIED SCIENCE.

Department of Architecture.

Berrington. A.—"Town Planning Schemes for Greater Paris." (The Architects' Journal of June 16th and 23rd.) (The Builder, June 25th.)

" The Paris Competition." (Town Planning Review, December 1920.)

Department of Applied Mechanics.

Gillespie, P.—"Engineers and Affairs—A Worthy Prototype." (Canadian Engineer. Nov. 11th. 1920)

" Dosing Tanks for Sprinkling Filters." (Canadian Engineer. April 21st, 1921.)

" De Lavand Process of Pipe Manufacture." (Canadian Engineer, May 12th, 1921.)

Young. C. R.—"Rapid Determination of True Net Sections of Riveted Tension Members." (Engineering and Contracting. Aug. 25th, 1920.)

" New Specification for Net Section of Riveted Tension Members." (Canadian Engineer, Oct. 14th, 1920.)

" Characteristics of Long Span Suspension Bridges." (Canadian Engineer, Nov. 4th. 1920.)

" Reduction of Girder and Column Live Loads." (Canadian Engineer, Dec. 2nd, 1920.)

" Torsion on Rectangular Cross Sections." (Canadian Engineer, Mar. 24th, 1921.)

" Structural Engineering as a Specialty." (Transactions, Univ. of Toronto Engineering Society, 1920-21.)

" Structural Problems, Part 1." (Transactions, University of Toronto Engineering Society, Sept. 1920.)

" Structural Problems, Part 2." (Transactions, University of Toronto Engineering Society, Jan. 1921.)

FACULTY OF FORESTRY.

Millar, W. M.—"Methods of Communication Adapted to Forest Protection." (pp. 230. illus. 120.) (Dominion Forestry Branch, Department of the Interior, 1920, Ottawa.)

ONTARIO COLLEGE OF EDUCATION.

Crawford, J. T.—"Senior High School Algebra—300 pages." (The Macmillan Company of Canada, Toronto.)

" Mathematical Tables." 32 pages. (A. T. Wilgress, Toronto.)

Department of Social Service.

Dale, J. A.—"The Right Track: History of the Movement for Compulsory Education in Quebec, by the late Irving Vincent." (Dent, Toronto.)

" Ruskin and Shakespeare, in Ruskin the Prophet: being Centenary Essays by John Masefield, W. R. Inge, C. F. G. Masterman, Lawrence Binyon, J. A. Hobson, J. A. Dale, J. H. Whitehouse and H. W. Hevinson." (G. Allen and Unwin, London.)

" Canadian Universities." (Manchester Guardian.)

" Education, Production and Democracy." (Canadian Railroader.)

" A Continuation School Scheme." (Canadian Railroader.)

" Child Welfare." (Echoes: I.O.D.E.)

Department of Public Health Nursing.

Russell, Miss E. K.—"Public Health Field Work for the Undergraduate Nurse." (The Canadian Nurse, August, 1920.)